# MICROLINE 182/183 PRINTER

# MAINTENANCE MANUAL

# PREFACE

This maintenance manual describes field maintenance of the Microline 182/183 for maintenance engineers.

For performance specifications and operating procedures, refer to the "User's Manual".

# CONTENTS


| | | Page |
|---|---|---|
| CONFIGURATION | | 1-1 |
| 1.1 | Standard Printer Configuration | 1-1 |
| 1.2 | Options | 1-2 |
| MAINTENANCE TOOLS | | 2-1 |
| PARTS REPLACEMENT | | 3-1 |
| 3.1 | Precautions for Parts Replacement | 3-1 |
| 3.2 | Disassembly and Reassembly Procedures | 3-2 |
| CLEANING | | 4-1 |
| ADJUSTMENT | | 5-1 |
| TROUBLESHOOTING AND REPAIR | | 6-1 |
| 6.1 | Items to be Checked Before Repair | 6-1 |
| 6.2 | Method of Troubleshooting | 6-1 |
| 6.3 | Connection Circuit and Resistance Check for Print Head and LF/SP Motor | 6-5 |
| CIRCUIT DIAGRAM | | 7-1 |
| MAINTENANCE PARTS LIST | | 8-1 |

APPENDIXES

THEORY OF OPERATION
SPECIFICATIONS (STANDARD MODEL)
SPECIFICATIONS (IBM COMPATIBLE MODEL)
DIP SWITCH SETTING TABLE, (STANDARD MODEL)
DIP SWITCH SETTING TABLE (IBM COMPATIBLE MODEL)

# RECORDS OF CHANGES

| Part No. | ECO No. | Printer/PCB Serial No. | Page affected | Description of changes |
|---|---|---|---|---|
| OKI-J Part No. M-52033; ISSUE 1 | | | 3i-24, 3-25, 3-28, 3-29, 8i-9, 8-10, AM-5, AA-IO, | Correction (Replacement) (Addition) |
| | | | Front-cover, Preface, I-1, 1i-2, 3-34 8i-2 to 8-8 AB-1, AB-2 AC-1, AC-2 | Descriptions of ML183 are added. (Replacement) |
| | | | 7-27 to 7-33 | Circuit, diagram (Rev. 7) of SLMC-2 circuit board is added. (Addition) |
| | NML-007 | ML182<br>220 v 501 A00001 61<br>240 V 501A0000041<br>ML183<br>220 v 501 A0000001<br>240 V 501 A0000001 | r-35 to 7-41 | Circuit diagram (Rev. 8) of SLMC-2 circuit board is added. (Addition) |
| | NML-035 | ML182<br>220 v 504A0009311<br>240 V 504A0004441<br>ML183<br>220 v —<br>240 V — | 7-43 to 7-49 | Circuit diagram (Rev. 9) of SLMC-2 circuit board is added. (Addition) |
| | NML-053 | ML182<br>220 v 506A0012961<br>240 V 506A0007001<br>ML183<br>220 v 506A0000009<br>240 V 506A0000003 | 7-51 to 7-57 | Circuit diagram (Rev. 10) of SLMC-2 circuit board is added. (Addition) |
| | NML-063 | ML1 82<br>220 v 508A0016961<br>240 V 508A0008501<br>ML183<br>220 v 506A0000009<br>240 V 506A0000003 | 7-59 to 7-69 | Circuit diagram (Rev. 11) of SLMC-2 circuit board is added. (Addition) |

(con.)

| Part No. | ECO No. | Printer/PCB Serial No. | Page affected | Description of changes |
|---|---|---|---|---|
| | NML-037 | 220 V 504A0009311<br>240 V 504A0004441 | AD1, AD2 | Change of DIP switch functions (Replacement) |
| | NML-038 | 220 V 503A0007411<br>240 V 503A0003091 | AE-1 | |
| | | | AB-3 | (Deletion) |
| | | | Back cover | Renewal of issue (Replacement) |

# 1. CONFIGURATION

# 1. CONFIGURATION

## 1.1 Standard Printer Configuration

The standard configuration of the ML 182/183 is as follows:

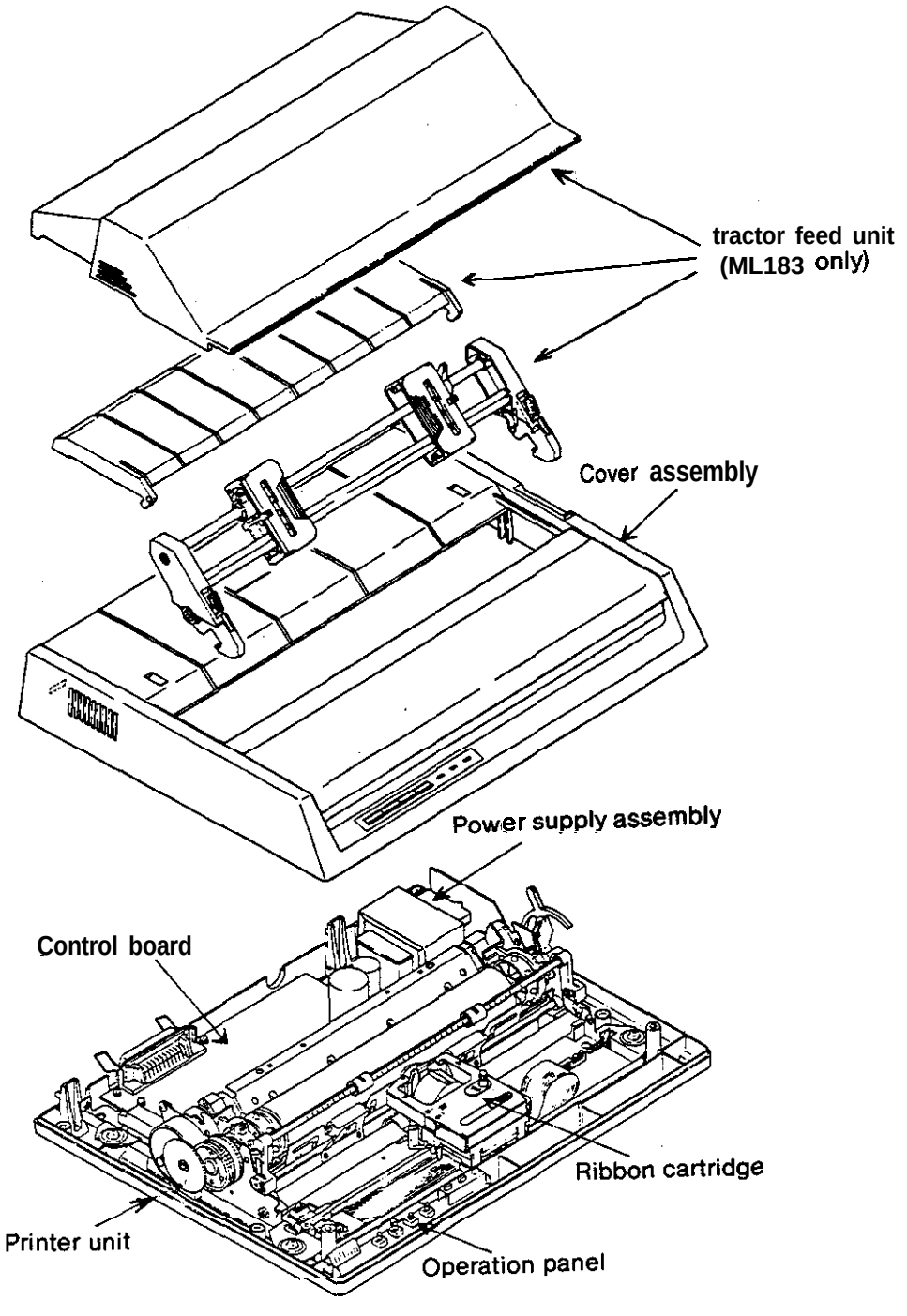
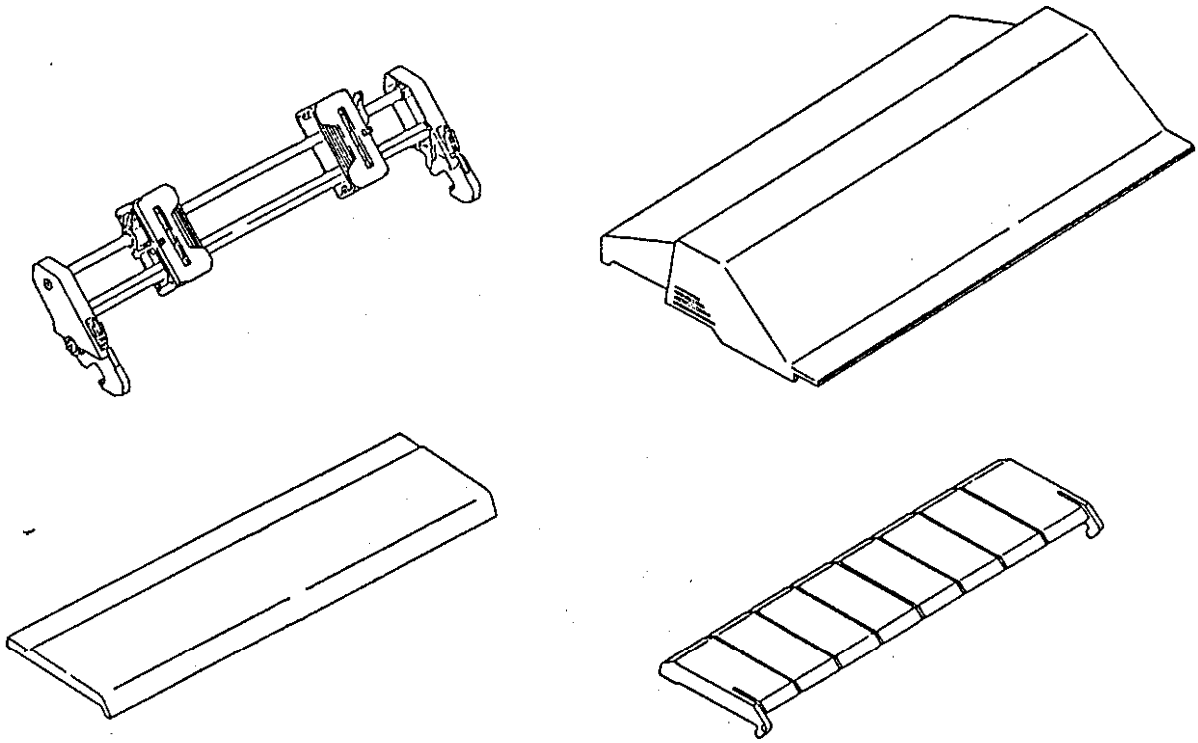


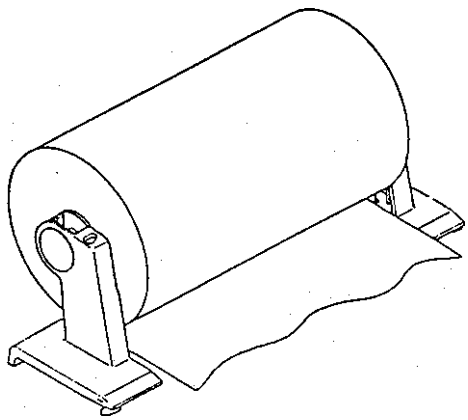

**Figure I-1 Printer Configuration**

## 1.2 Options

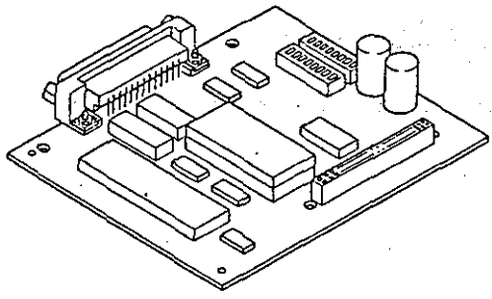
(1) **Tractor feed unit with acoustic cover, access cover and paper separator (only ML1 82)**



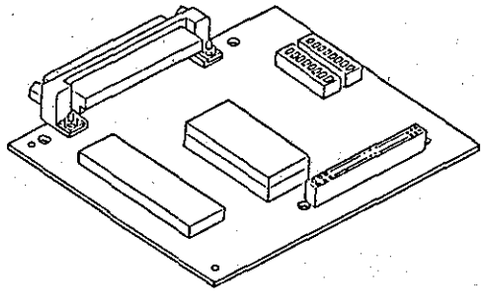
(2) **Roll paper stand (only ML182)**



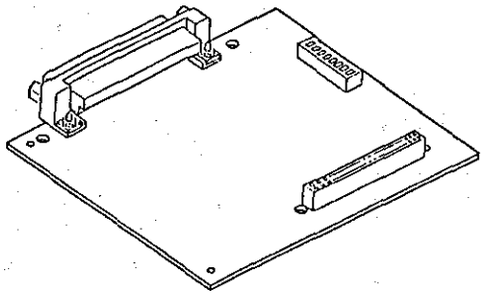
(3) Super-speed RS232-C serial interface board,



(4) Super-speed RS422-A serial interface board



(5) High-speed RS422-A serial interface board



# 1. CONFIGURATION

## 1.1 Standard Printer Configuration

**The standard configuration of the ML 182/183 is as follows:**

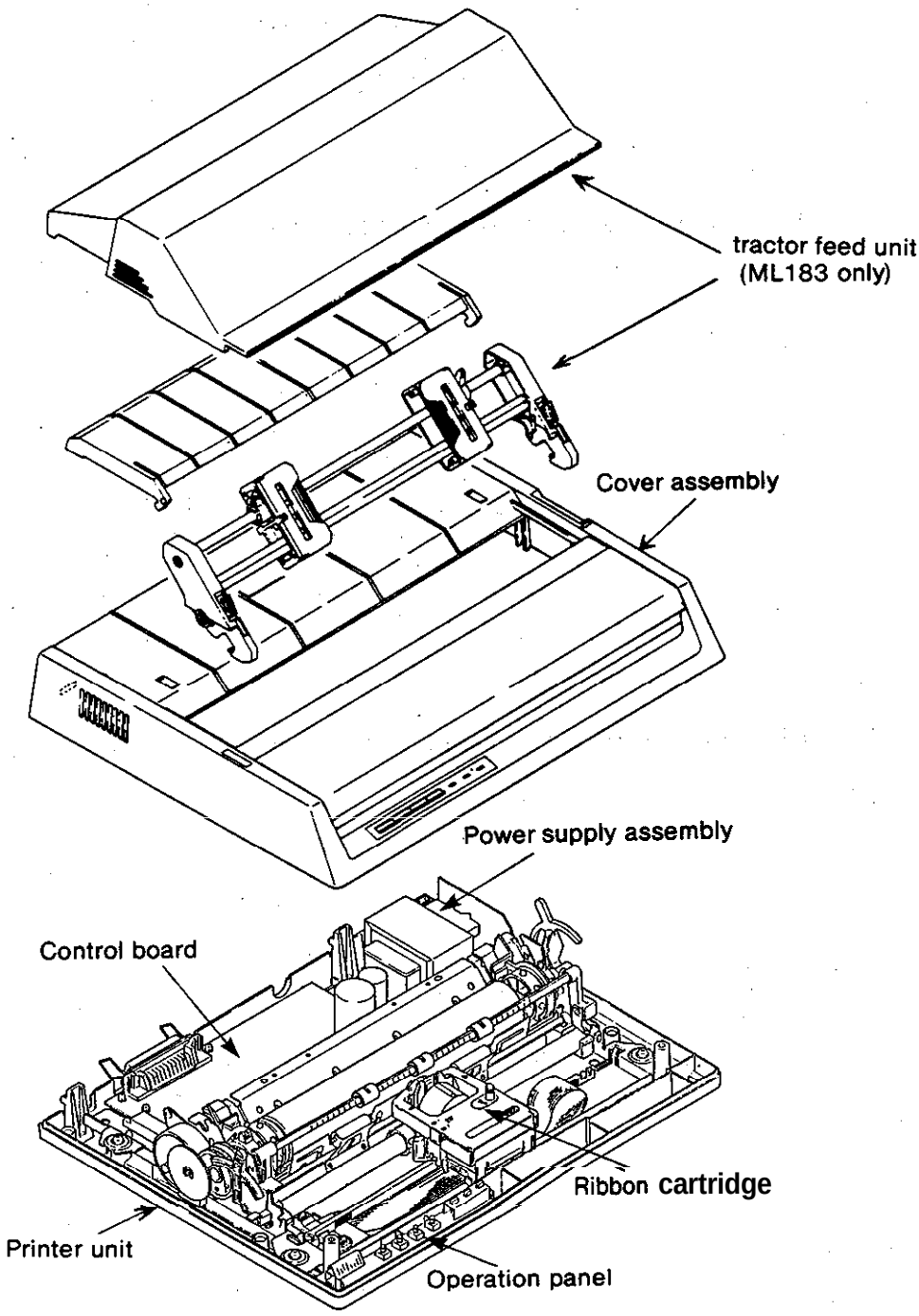
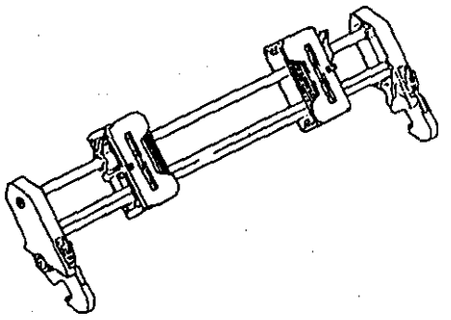
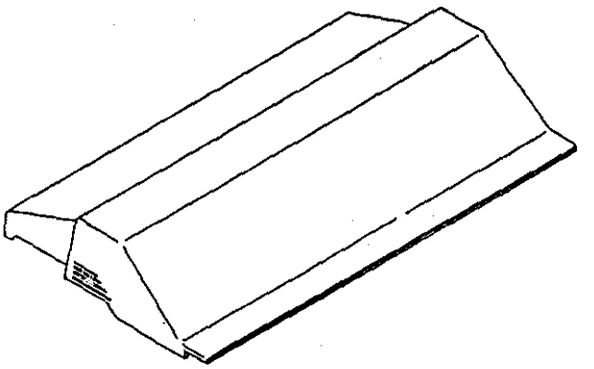


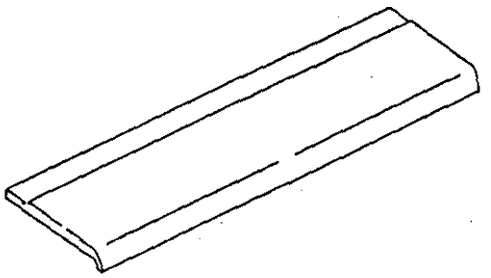

**Figure I-1 Printer Configuration**

## 1.2 Options

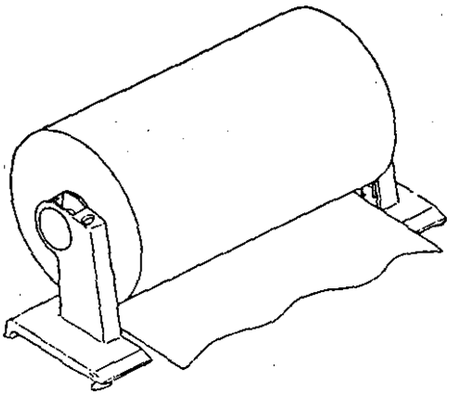
(1) Tractor feed unit with acoustic cover and, access cover. (only ML182)

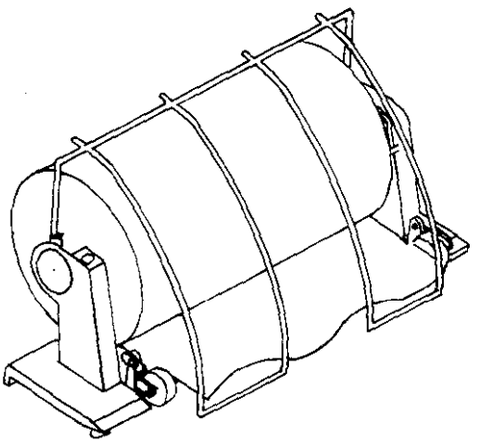






(2) Roll paper stand (only ML182)





with paper row detection micro switch

# 2. MAINTENANCE

# 2. MAINTENANCE TOOLS

The tools in table 2-l are necessary for replacing printed-circuit boards and unit parts. For other maintenance procedures, different tools may be necessary.

Table 2-l Maintenance Tools

| No. | Tool | Quantity | Purpose | Remarks |
|---|---|---|---|---|
| 1 | Phillips screwdriver No. l-100 | 1 | 2- to 2.6-mm screws | |
| 2 | Phillips screwdriver No. 2-200 | 1 | 3- to 5-mm screws | |
| 3 | Screwdriver No. 3-100 | 1 | | |
| 4 | Cutters No. 5H | 1 | | |
| 5 | Round pliers No. 1 | 1 | | |
| 6 | Thickness gauge set | 1 | for head gap adjustment | |
| 7 | Metal rod | 1 | for head gap. adjustment | |
| a | Volt-ohm-milliammeter | 1 | | |

# 3. PARTS REPLACEMENT

# 3. PARTS REPLACEMENT

## 3.1 Precautions for Parts Replacement

(1) Be sure to turn OFF the AC POWER switch and remove the AC input plug from the AC receptacle before disassembly or reassembly.

(2) Do not disassemble the printer as long as it is in good operating condition.

(3) Be careful not to remove parts unless, necessary. Disassembly should be the minimum necessary.

(4) Use only the specified maintenance tools.

(5) Disassemble the printer in the specified order of disassembly procedures; otherwise, parts may be damaged.

(6) In the course of disassembly, it may be a good idea to keep the removed small parts such as screws and washers by attaching them temporarily to their original places so as not to lose them.

(7) ICs such as the microprocessor, ROM, and RAM can easily be damaged by static electricity. Do not wear gloves that are apt to produce static electricity when handling printed-circuit boards.

(8) Do not place the printed-circuit boards directly on the printer or the floor.

## 3.2 Disassembly and Reassembly Procedures

### 3.2.1 Upper cover

(1) Turn OFF the AC POWER switch, and remove AC cable ① from the outlet, and then remove interface cable ②, remove paper.

(2) Remove acoustic cover and paper separator (if installed).

(3) Remove tractor feed unit ③ by depressing lock lever ④ and tilting backward (if it is installed).

(4) Remove roll paper with paper shaft ⑤ by lifting upward. Remove side frame ⑥ by tilting forward (if it is installed).

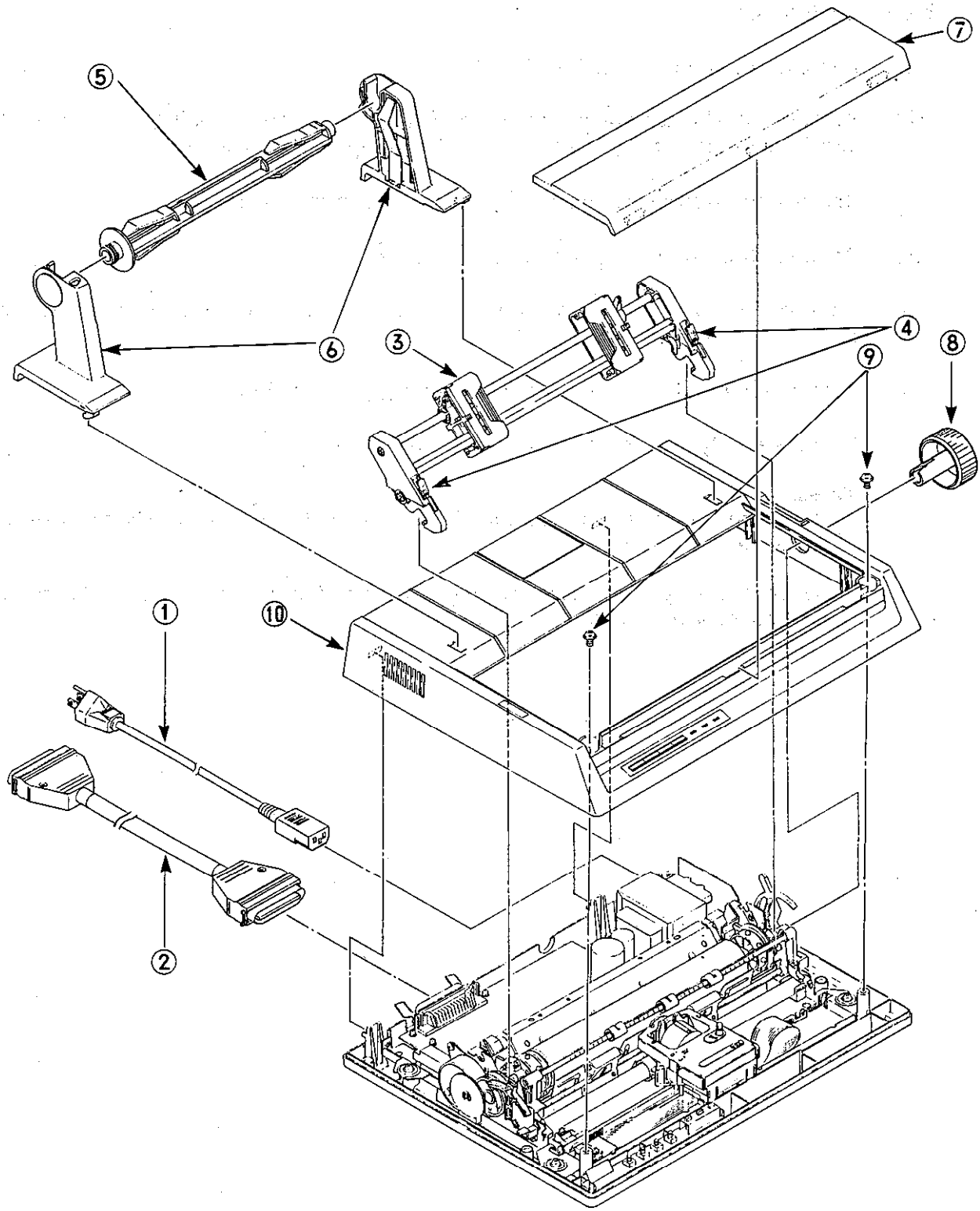
(5) Remove access cover ⑦ by lifting rear, edge.

(6) Pull platen knob ⑧ out

(7) Remove two screws'@.

(8) Remove upper cover ⑩ by lifting up front and pushing it backward.

(9) For reassembly, reverse the disassembly procedure.


⑤
⑦
⑥
④
③
⑨
⑧
①
⑩
②

### 3.2.2 Control board

(1) Remove the upper cover (see 3.2.1).

(2) Remove serial interface board by removing two screws locating on both sides of interface connector. Remove interface board upward (if installed).

(3) Remove transformer connector ② from the control board ①.

(4) Remove three screws ③ and two screws ④.

(5) Remove control board ① by lifting upward (see Notes below). Observe paper near-end lever when removing the PCB.

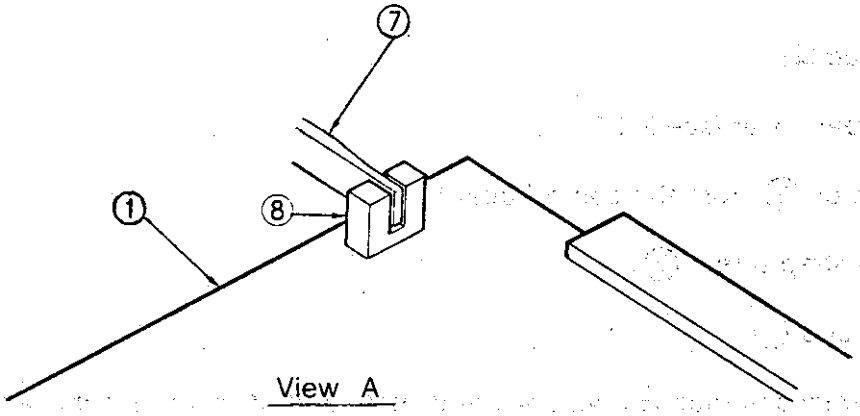
(6) Before reassembly, secure rubber insulator ⑤ is installed.

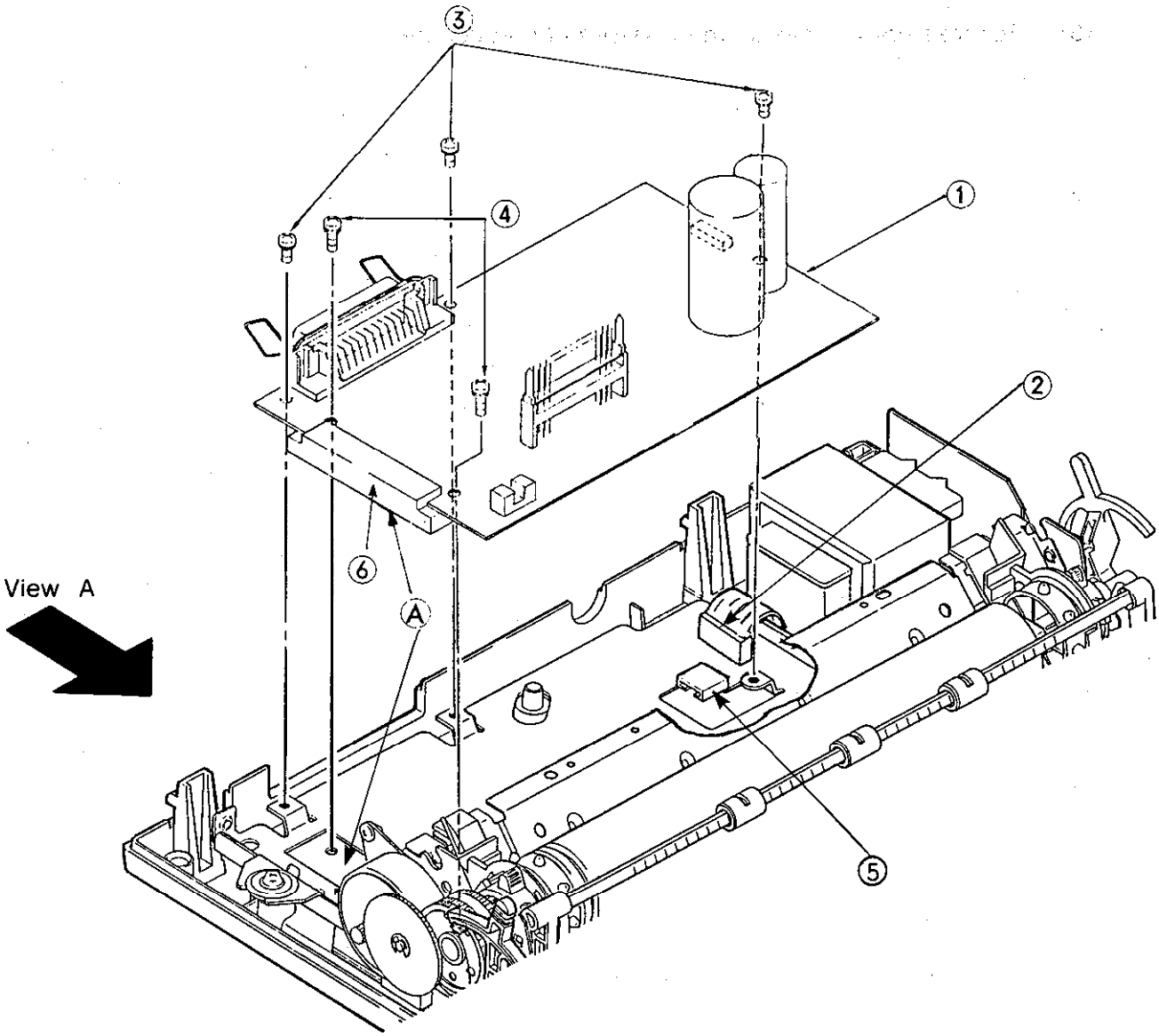
(7) For reassembly, reverse the disassembly procedure..

***Notes:***

1. *Do not touch the terminal (contact) @for* **connector** ⑥ *directly with hand and make sure that if is clean.*

2. *When affaching, make sure that paper near-end lever* ⑦ *is c/ear in the groove of phofosensor* ⑧ *on control board* ①.


7
1
8
View A


3
4
1
2
6
A
5
View A

### 3.2.3 Transformer assembly

(1) Remove the upper cover (see 3.2.1).

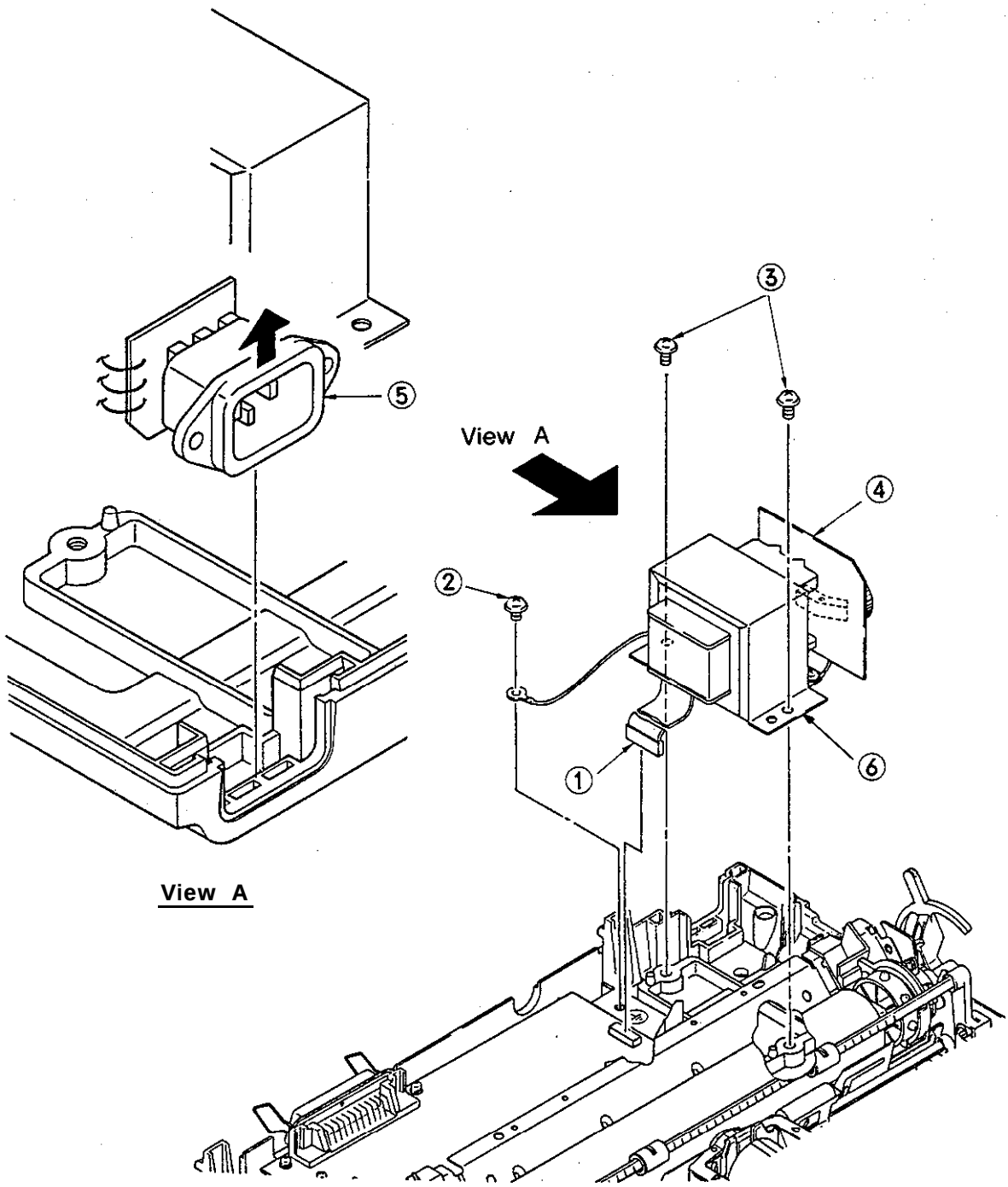
(2) Remove connector ① from the control board.

(3) Remove ground strap screw ②

(4) Remove two screws ③.

(5) Remove transformer assembly@ with power PCB④ and AC cord receptacle ⑤ by lifting upward.

(6) For reassembly, reverse the disassembly procedure.




View A

### 3.2.4 **Power supply board**

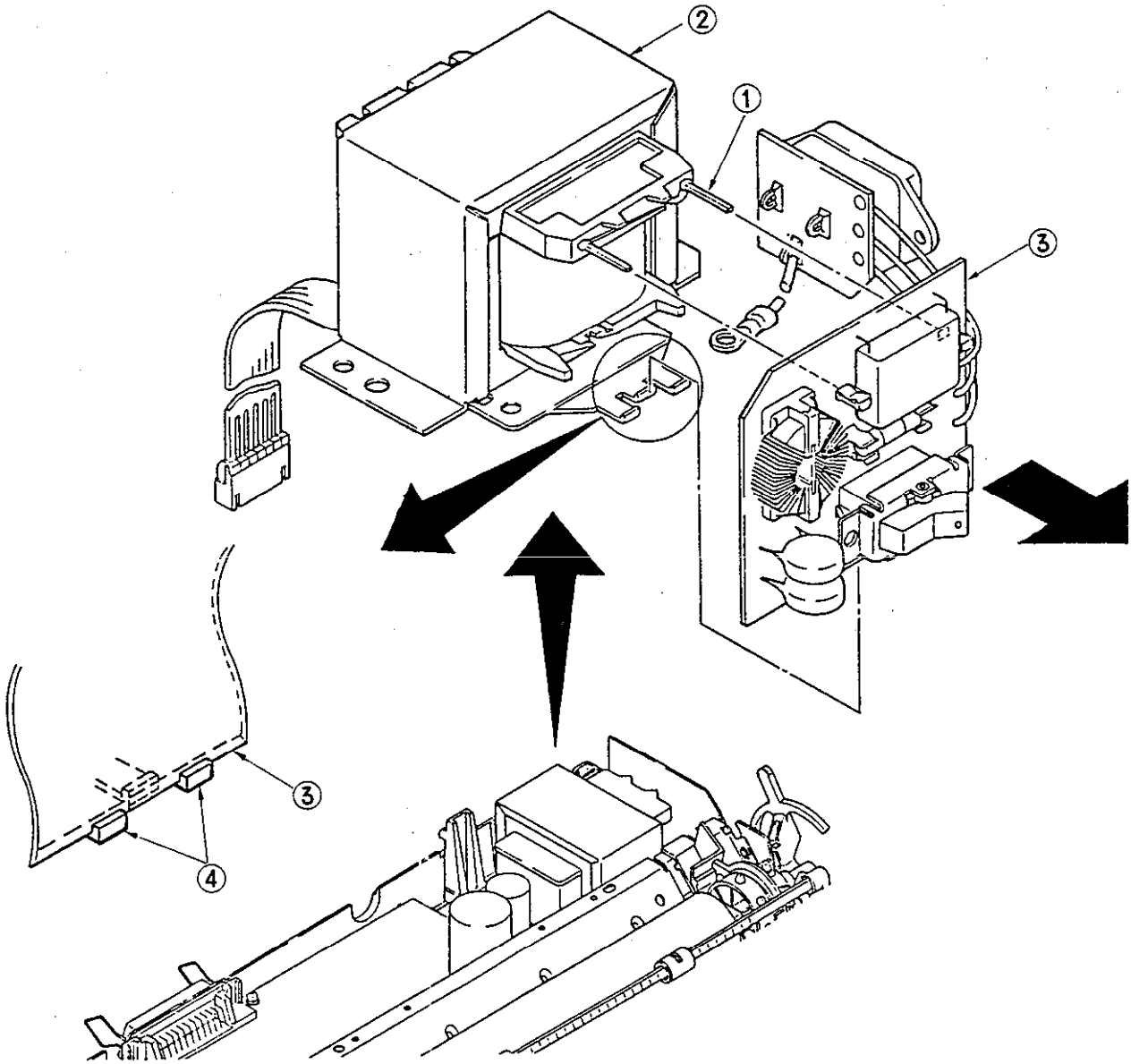
(1) Remove the upper cover (see 3.2.1).

(2) Remove the transformer asssembly (see 3.2.3).

(3) Remove power supply board ③ from transformer ② by pulling off connection pins ①.

(4) For reassembly, reverse the disassembly procedure.

Note: *When attaching,* set *the powersupplyboard* ③ *along guide* ④ *before assembling.*


②
①
③
③
④

### 3.2.5 Operation board

(1) Remove the upper cover (see 3.2.1).

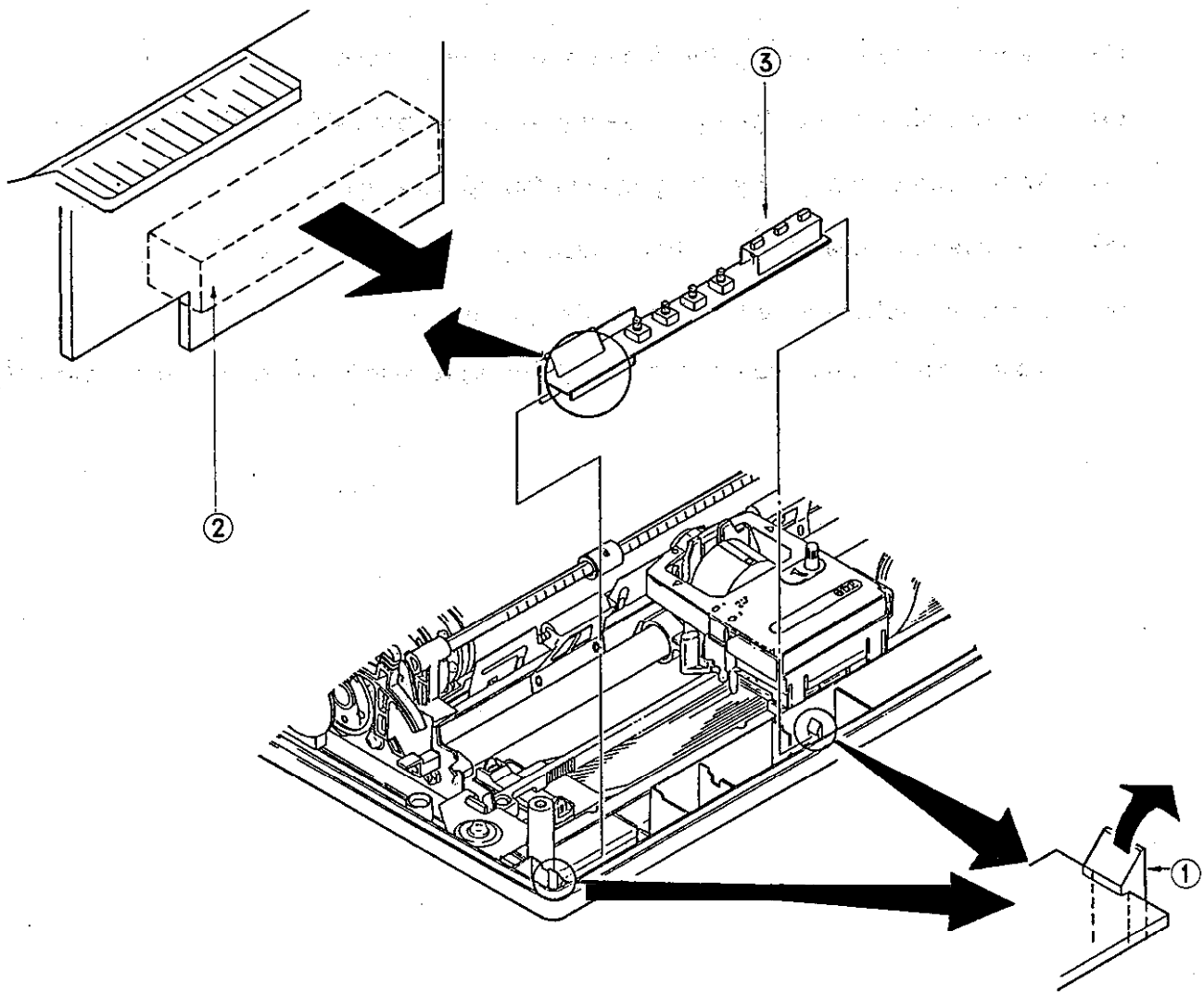
(2) Disengage two tabs ①.

(3) Remove connector ② connecting the connection board and operation board.

(4) Remove operation board ③.

(5) For reassembly, reverse the disassembly procedure.

Note: Be *careful not to damage the cab/e connecting the switch and the connector.*


③
②
①

### *3.2.6* Print head

(1) **Turn OFF the AC POWER switch, and remove AC cable ① fiom the outlet.**

***Caution:*** ***Print*** *head may be hot after printing.*

(2) **Remove access cover ② by lifting up rear edge of cover.**

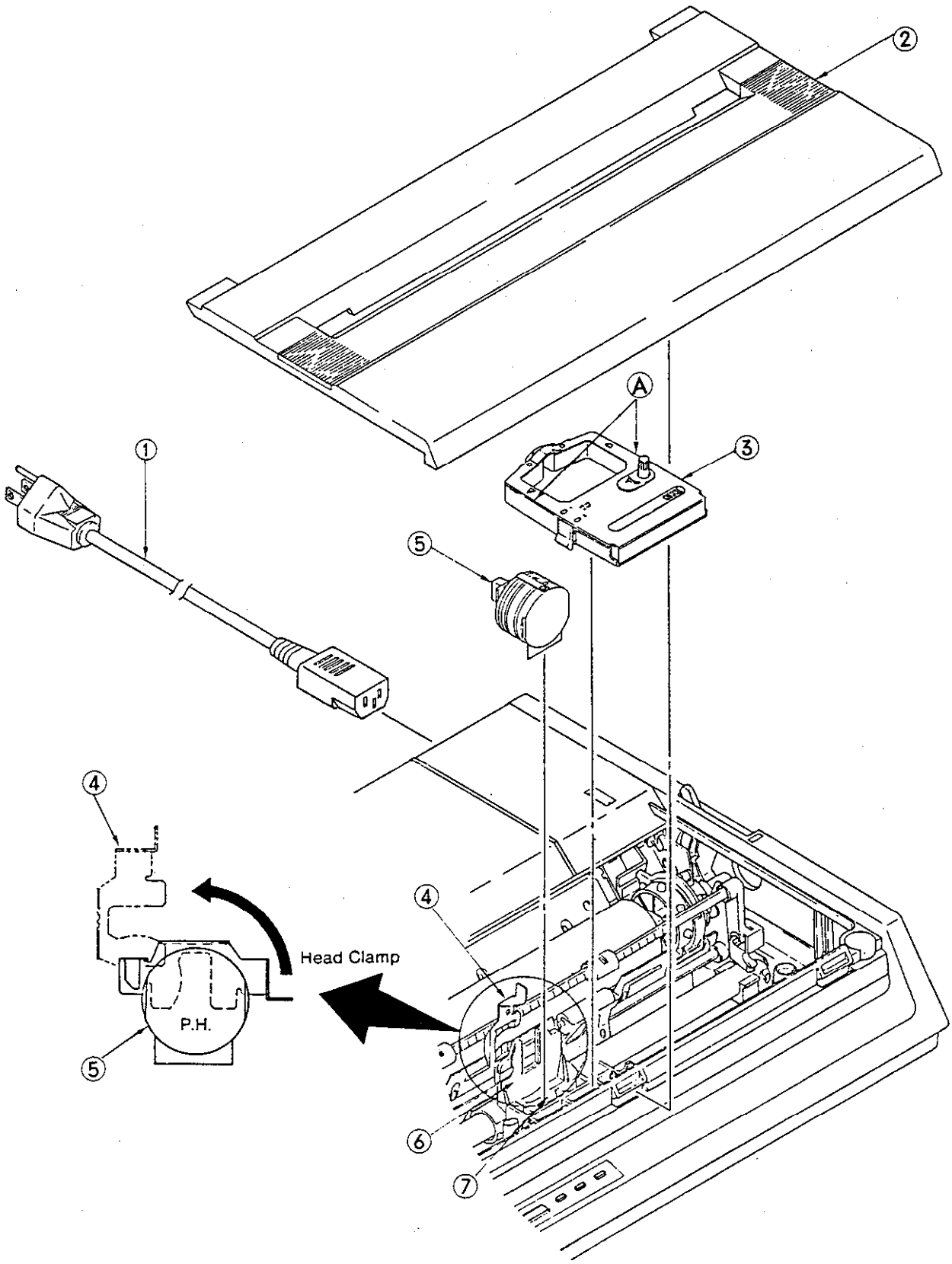
(3) **Remove ribbon cartridge ③ by gently squeezing both sides Ⓐ and lifting up.**

(4) **Raise head clamp ④ by swinging right tab up (see figure).**

(5) **Remove print head ⑤ by lifting straight up.**

(6) **For reassembly, reverse the disassembly procedure.**

***Note:*** *Insert the print head in connector ⑦ while pressing it against the carriage frame@.*


②
Ⓐ
①
③
⑤
④
Head Clamp
P.H.
④
⑤
⑥
⑦

### 3.2.7 **Ribbon feed gear assembly**

(1) Remove the upper cover (see 3.2.1).

(2) Remove ribbon cartridge ① by lifting both sides Ⓐ

(3) Disengage the two front tabs ③ and two rear tabs@ (total of four tabs). Then lift upward by inserting small flat screwdriver to slots.

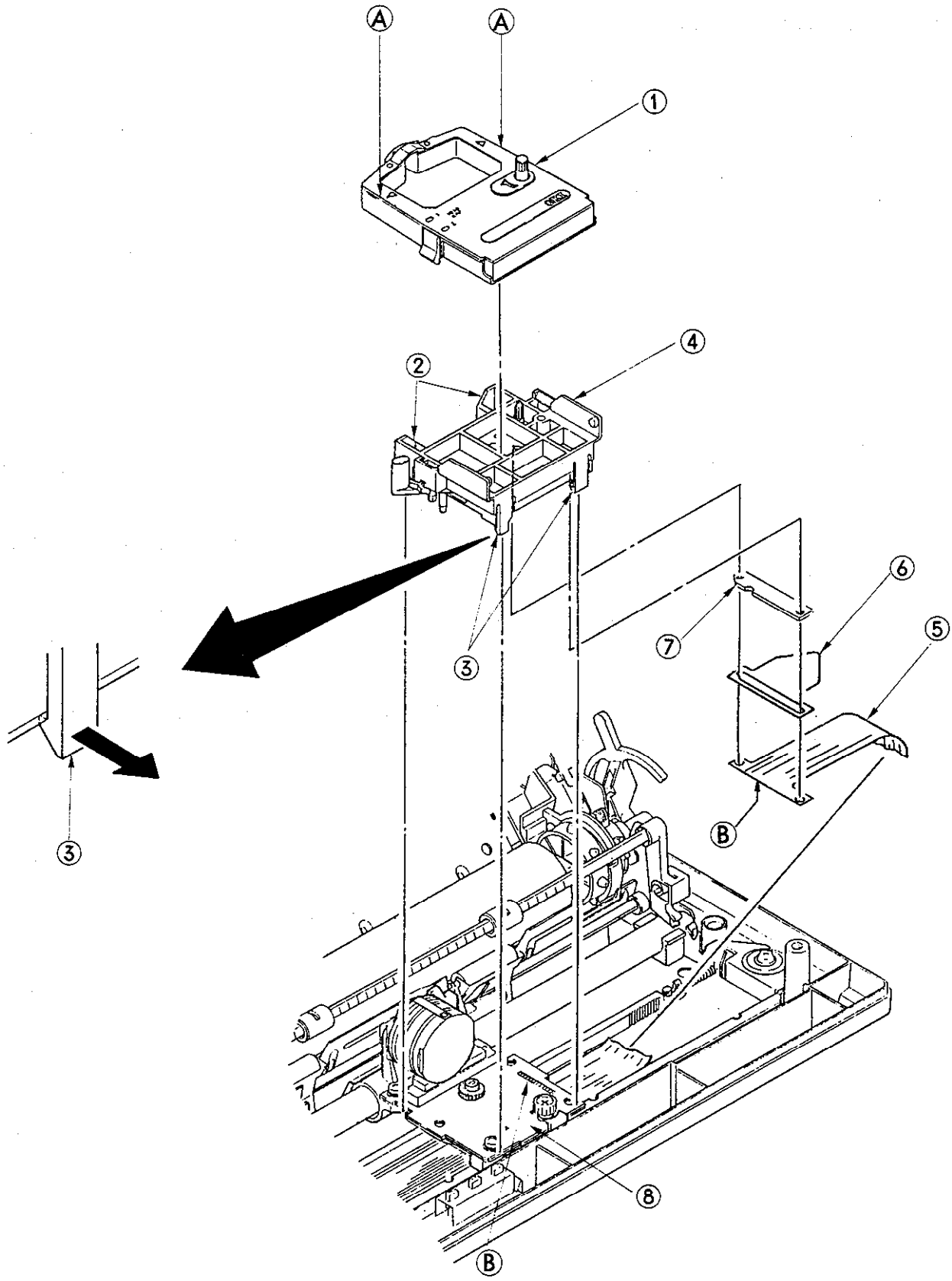
(4) Remove ribbon feed gear assembly ④.

(5) Remove carriage cable ⑤, cable holder ⑥, and contact pressure rubber ⑦ from ribbon feed gear assembly ④.

(6) For reassembly, reverse the disassembly procedure.

Notes:

1. *D 6B not touch the carriage cable ⑤ and space motor assembly ⑧ terminal (contact) directly with hand and make sure that it is clean.*
2. ***Make sure the carriage cab/e ⑤ is not folded.***
3. ***After installing ribbon feed gear assembly ④, check and adjust the gap between the platen and print head (see section 5).***


A
A
1
2
4
3
6
7
5
3
B
8
B

### *3.2.8* Space motor assembly

(1) **Remove the upper cover (see 3.2.1).**

(2) **Remove the print head (see 3.2.6).**

(3) **Remove the ribbon feed gear assembly (see 3.2.7).**

(4) **Remove connector ①, and observe concave surface.**

(5) **Remove three screws ②.**

(6) **Remove space motor assembly ③.**

(7) **For reassembly, reverse the disassembly procedure.**

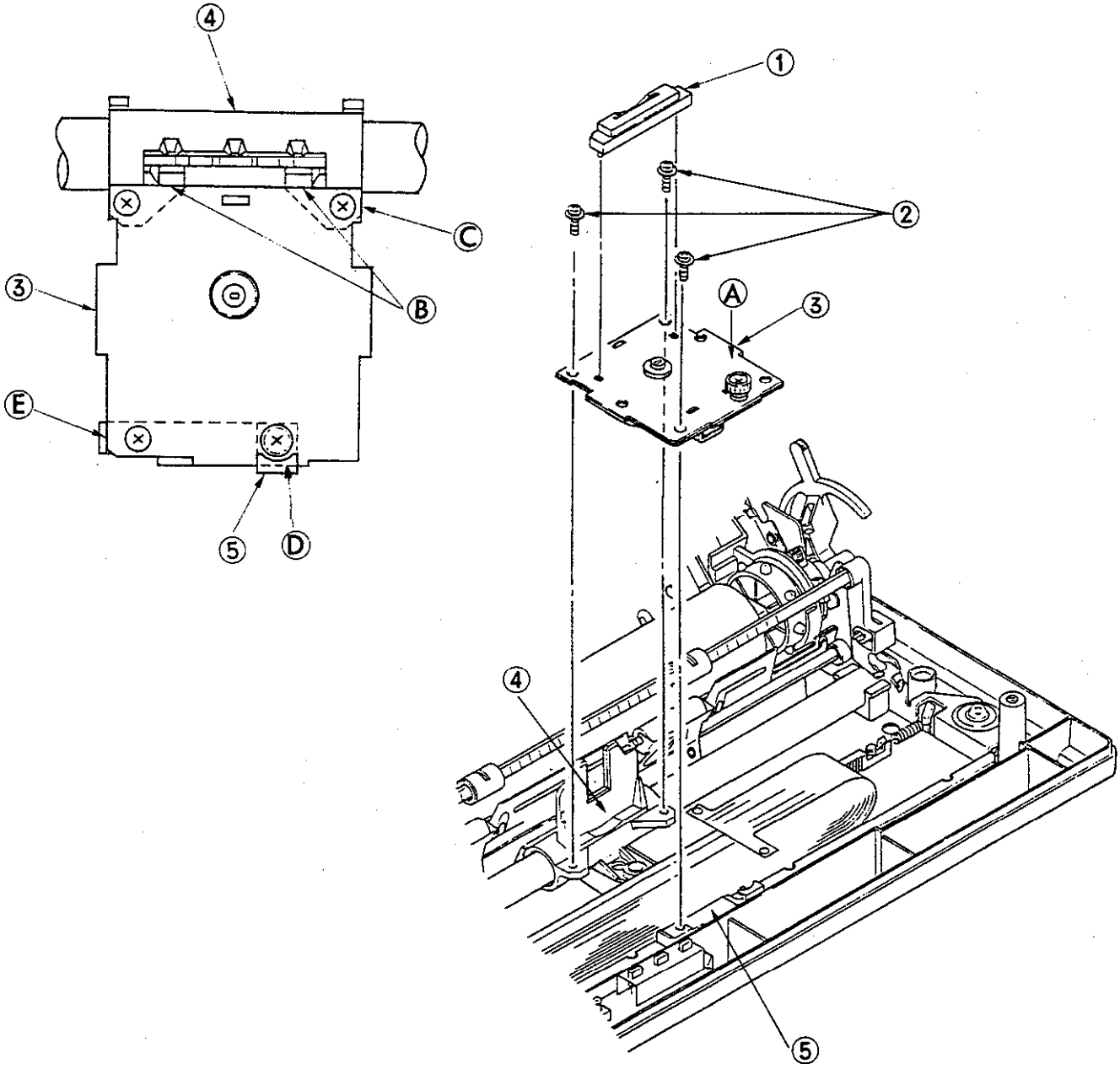
Notes:

1. *Do not touch the space motor* **assembly** *③ terminal (contact) Ⓐ directly with hand and make sure that if is clean.*

2. *When installing space motor assembly ③, put the Ⓑ side of the assembly close to carriage frame ④, and align the Ⓒ side of the assembly with the corresponding side* **of** *the carriage frame.*

3. *When installing slider ⑤, put the Ⓓ and Ⓔ parts of the slider close to space motor assembly ③.*

4. *After installing space motor assembly ③, checkandadjusf fhegap between the platen and print head (see section 5).*


4
C
B
3
E
5
D
1
2
A
3
4
5

### 3.2.9 Space rack

(1) Remove the upper, cover (see 3.2.1).

(2) Remove the print head (see 3.2.6).

(3) Remove the ribbon feed gear assembly (see 3.2.7).

(4) Remove the space motor assembly (see 3.2.8).

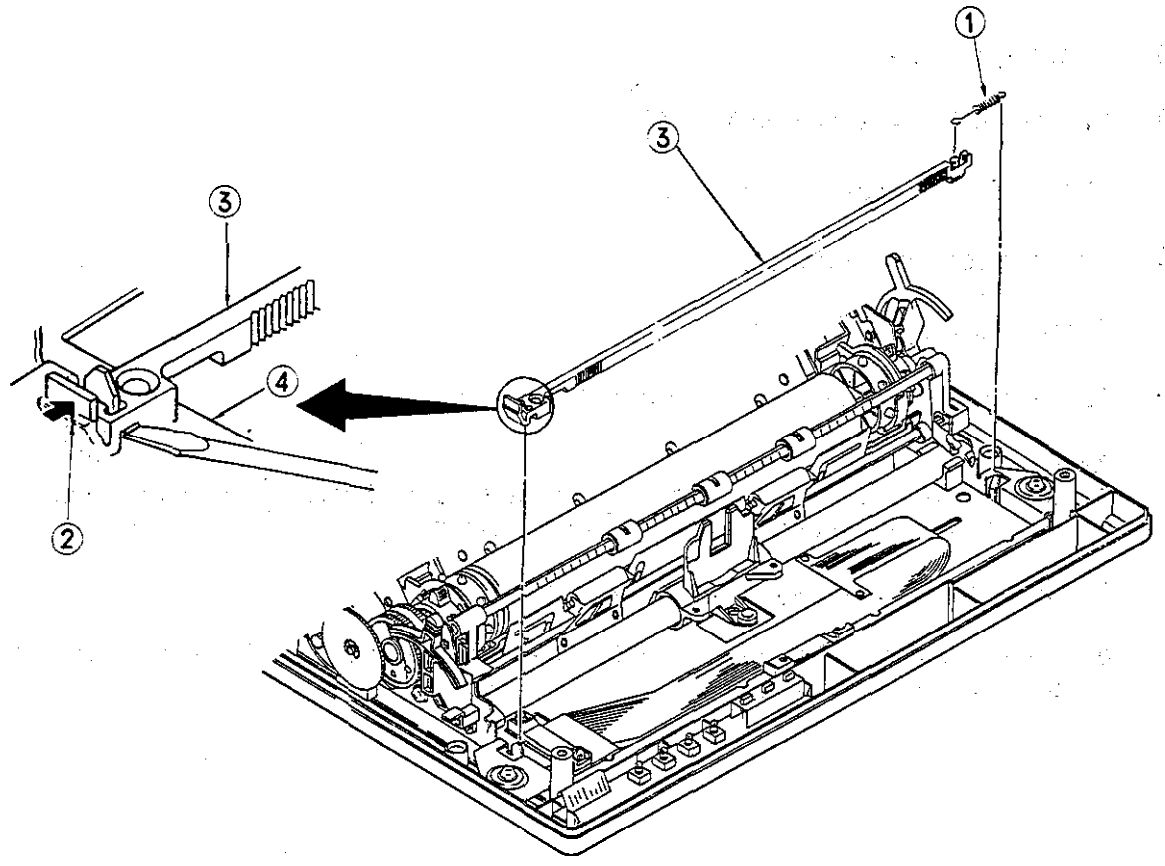
(5) Remove spring ①.

(6) Disengage tab ②.

(7) Remove by inserting a minus screwdriver between space rack @and base frame ④ and gently pushing the space rack ③ up.

(8) For reassembly, reverse the disassembly procedure.

Note: *After installing space* motor *assembly, check and adjust the gap between the platen and print head (see section 5).*


1
3
3
4
2

### 32.10 Carriage cable

(1) Remove the upper cover (see 3.2.1).

(2) Remove the print head (see 3.2.6).

(3) Remove the ribbon feed gear assembly (see 3.2.7).

(4) Remove the space motor assembly (see 3.2.8).

(5) Remove the space rack (see 3.2.9).

(6) Unlock the two tabs ① and remove cord clamp ②.

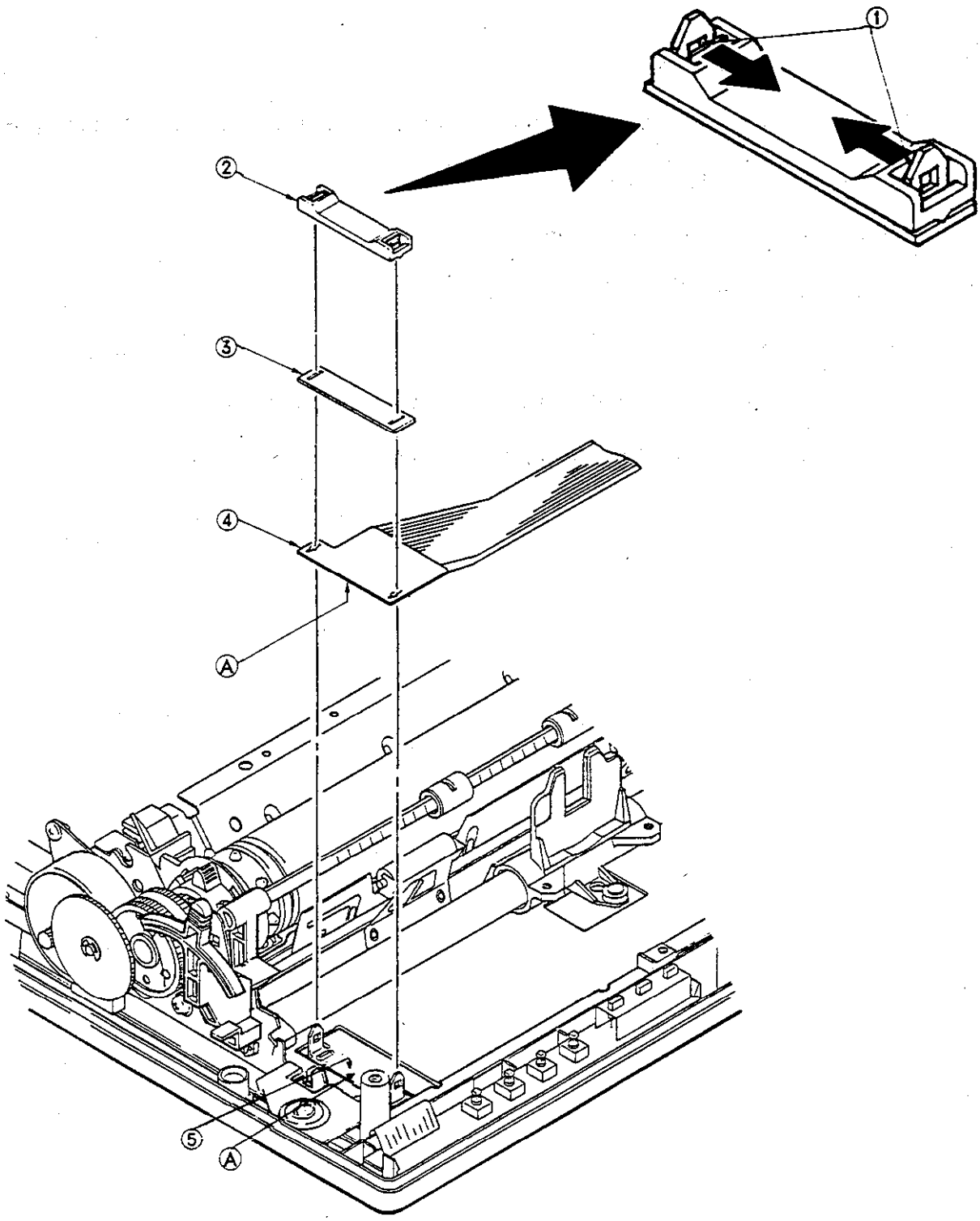
(7) Remove contact rubber ③.

(8) Remove carriage cable ④.

(9) For reassembly, reverse the disassembly procedure.

Notes:

1. *Do not touch the carriage cable ④ and connection board ⑤ terminal (contact) Ⓐ direct/y with hand and make sure that it is clean.*
2. *Make sure the carriage cab/e ④ is not folded.*
3. *After installing space motor assembly, check and adjust the gap between the platen and print head (see section 5).*


①
②
③
④
Ⓐ
⑤
Ⓐ

### 3.2.11 Printer mechanism

(1) Remove the upper cover (see 3.2.1).

(2) Remove connector ① connecting the control board ⑧ and **transformer assembly@.**

(3) Remove ground 'strap screw ②.

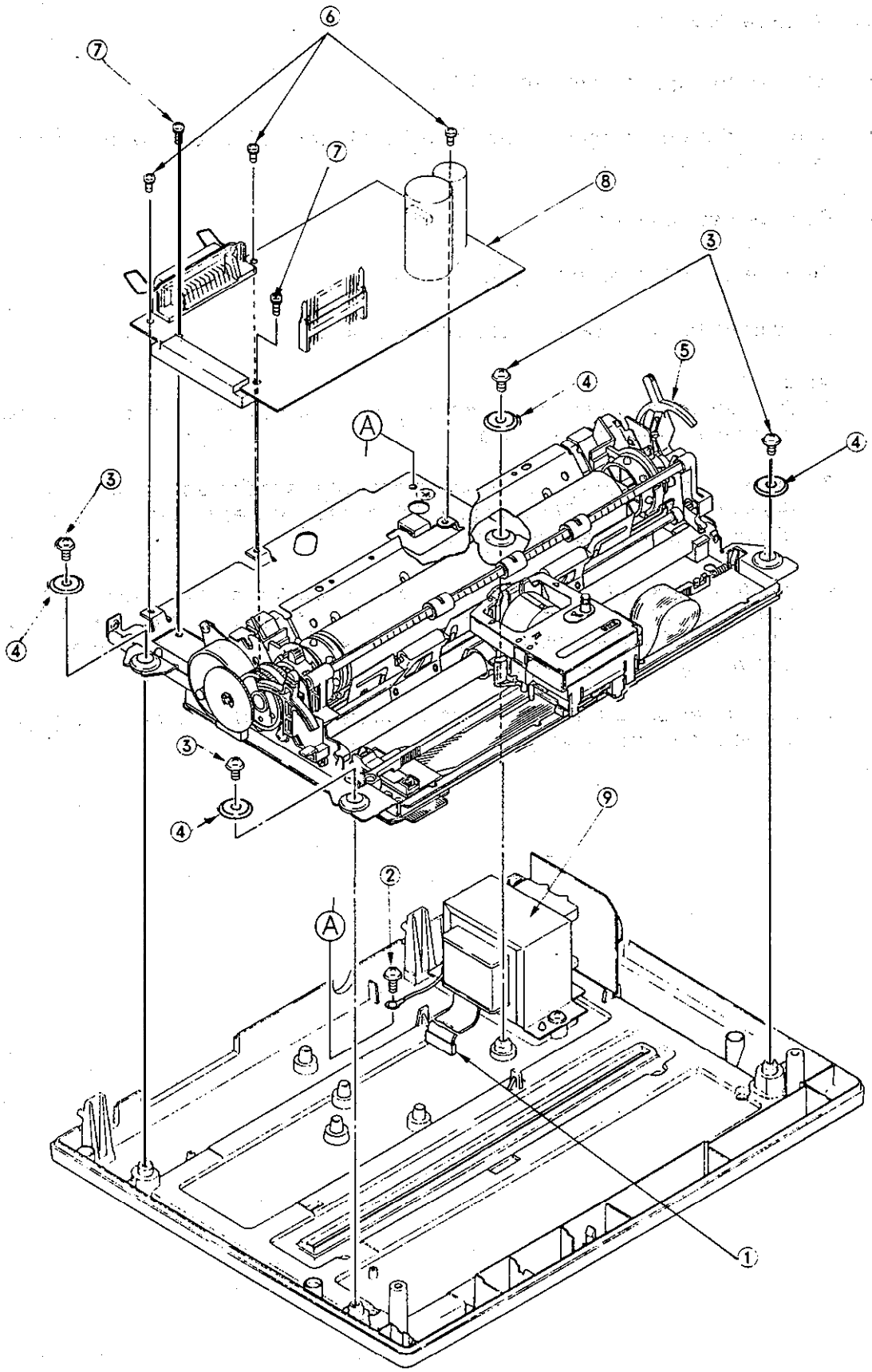
(4) Remove the operation board (see 3.2.5).

(5) Remove four screws ③ and washers ④.

(6) Remove printer mechanism ⑤.

(7) Remove three screws@, two screws ⑦, and control board ⑧.

(8) For reassembly, reverse the disassembly procedure.


⑥
⑦
⑦
⑧
③
⑤
④
Ⓐ
④
③
④
③
④
⑨
②
Ⓐ
①

### 3.2.12 LF motor assembly

**(1) Remove the upper cover (see 3.2.1).**

**(2) Remove the printer mechanism. (See 3.2.11 step 7. The control board need not be removed.)**

**(3) Remove two screws** ①.

**(4) Remove LF motor assembly** ②.

(5) **For reassembly, reverse the disassembly procedure.**

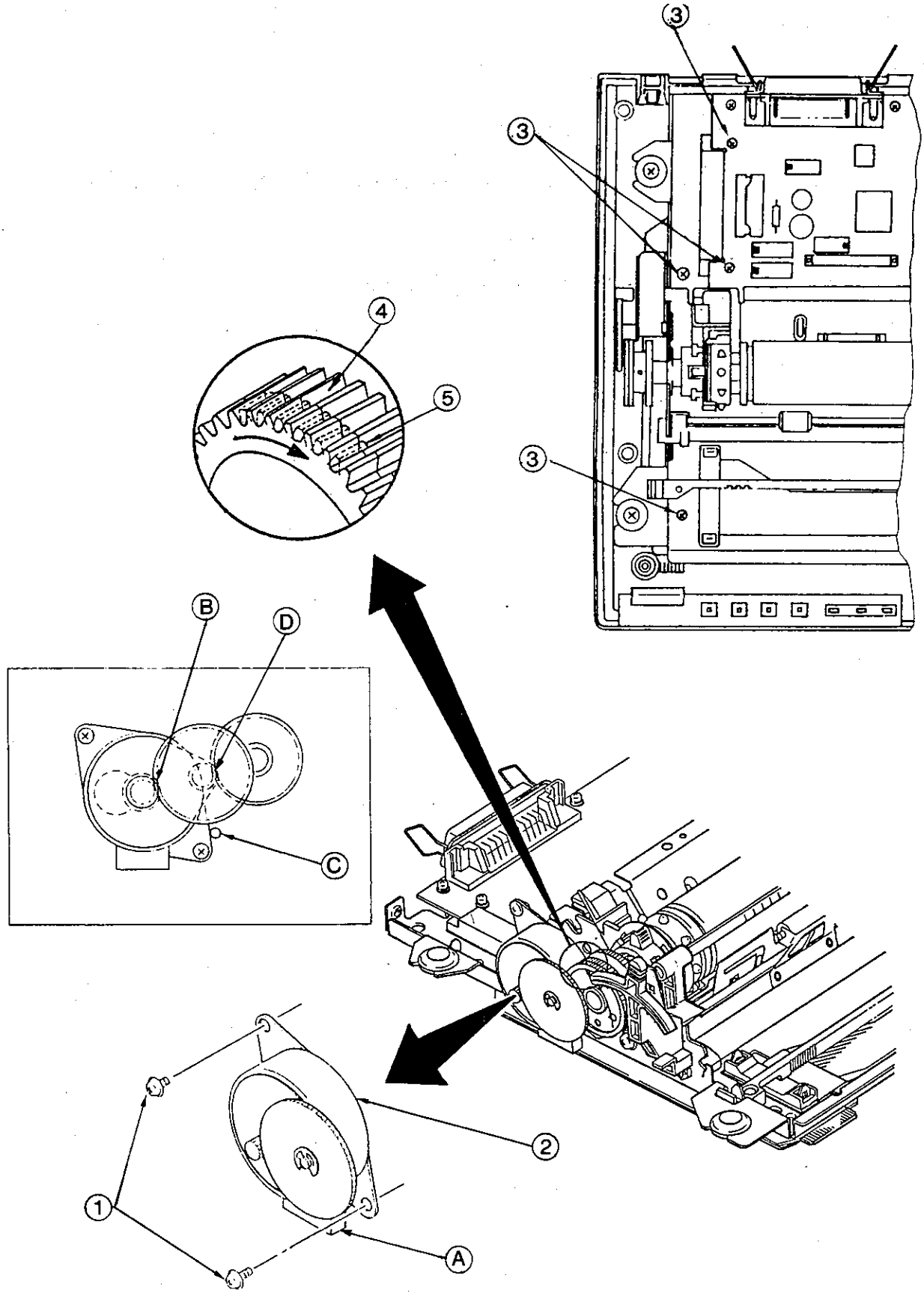
**Notes:**

1. DO **not touch the** *LF motor assembly* ② *terminal (contact) @directly with hand or fold it and make sure that if is clean.*

2. *Move the bias gear* ⑤ *to the platen gear* ④ *as indicated by the arrow then engage them at* ***portion*** Ⓓ. *(The bias gear* ⑤ *is differentiated by half of a tooth with respect to the tooth of platen gear* ④ *.)*

3. *When assembling the LF motor assembly* ②, *loosen the screw* ③ *fastening the connection board and make a space between the base and connection board. Then install the LF motor while pressing it against.* Ⓑ *and* Ⓒ. *Then tighten the screw* ③ **fastening the connection board.**

4. ***After*** *assembling, make sure that the platen gear* Ⓓ *is correctly engaged and the platen turns smoothly.*


3
3
3
4
5
B
D
C
2
1
A

### 3.2.13 Column indicator bar

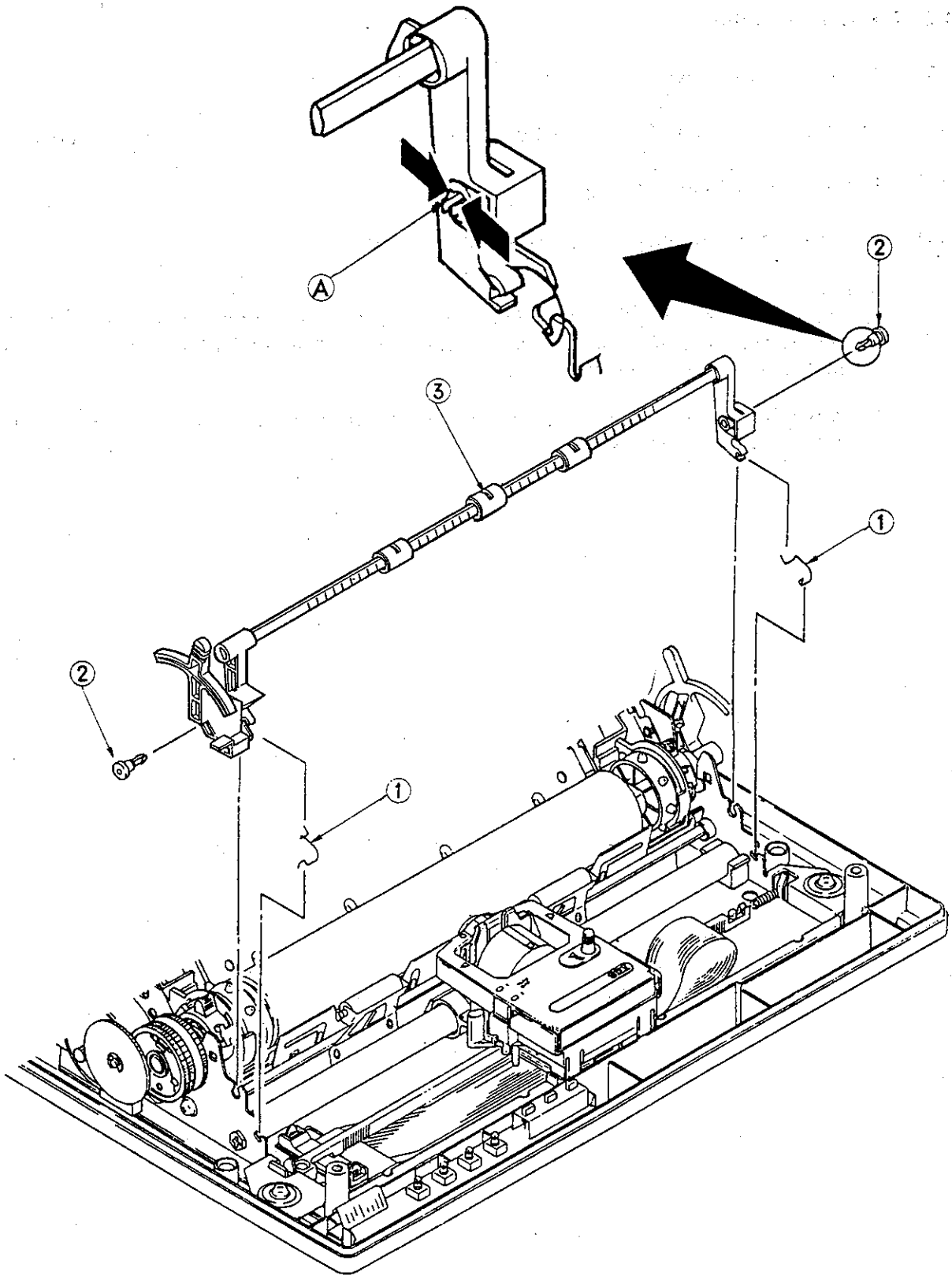
(1) Remove the upper cover (see 3.2.1).

(2) Remove two springs ① (see figure).

(3) Remove two shafts ② by squeezing exposed shaft pin Ⓐ and pushing out.

(4) Remove column indicator bar ③.

(5) For reassembly, reverse the disassembly procedure.


A
2
3
1
2
1

### 3.2.14 Platen assembly

(1) Remove upper cover (see 3.2.1).

(2) Disengage four tabs ① by gently pushing tabs from side plate (two on each side).

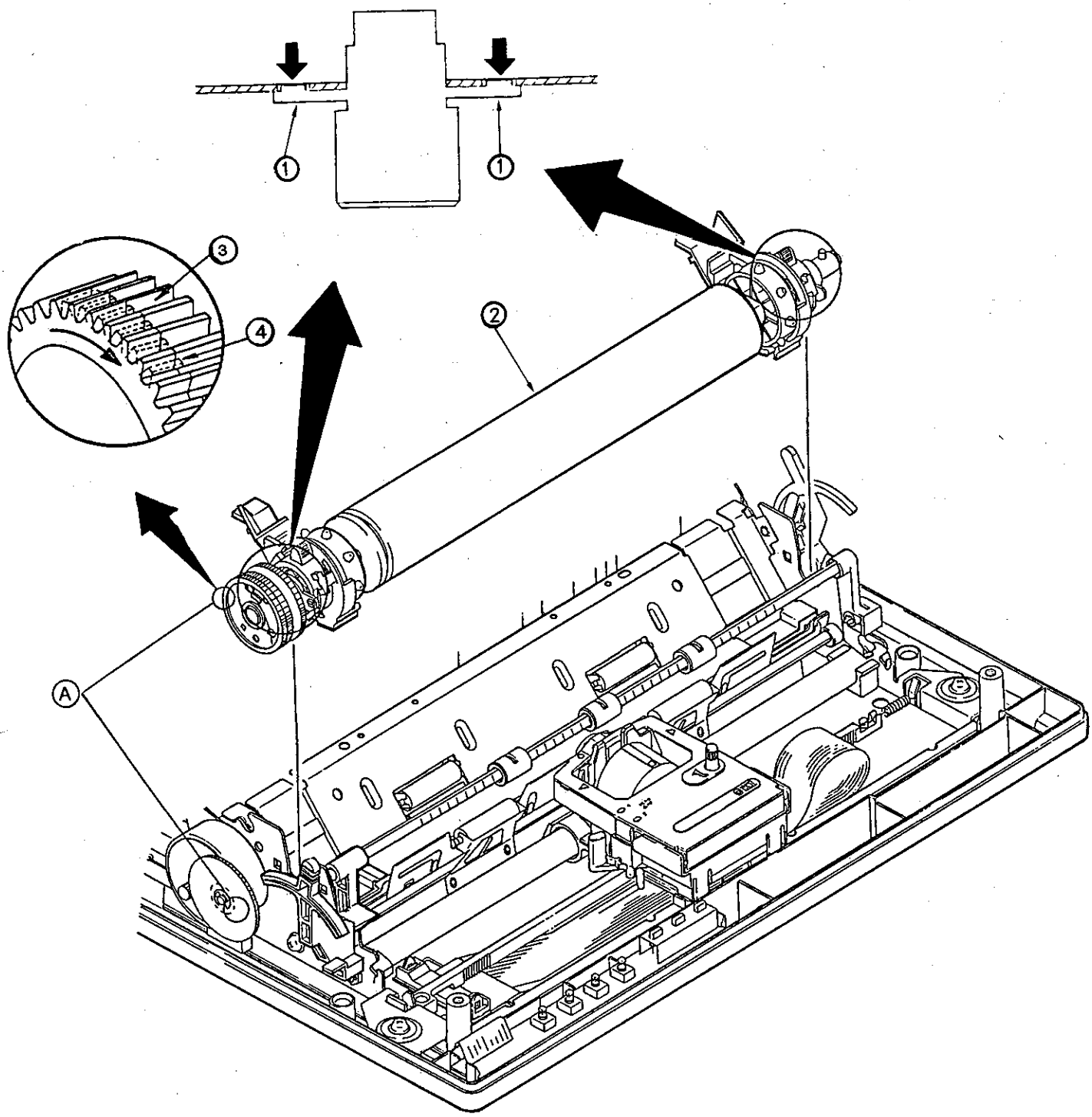
(3) Remove platen assembly ②

(4) For reassembly, reverse the disassembly procedure.

***Notes:***

1. *Move the bias gear ④ to the platen gear ③ as indicated by the arrow then engage them at portion Ⓐ. (The bias gear ④ is differentiated by half of a tooth with respect to the tooth of platen gear ③.)*

2. *After assembling, make sure that the platen gear Ⓐ is correctly engaged and the platen turns smoothly.*


1
1
3
4
2
A

### 3.2.15 Connection board

(1) Remove the upper cover (see 3.2.1).

(2) Remove the printer mechanism. (See 3.2.11 step 7. The control board need not be removed.)

(3) Remove four screws ① and ②.

(4) Move the carriage to left end.

(5) Remove the connection board ③ while feeding the carriage cable ④ through the hole on baseframe.

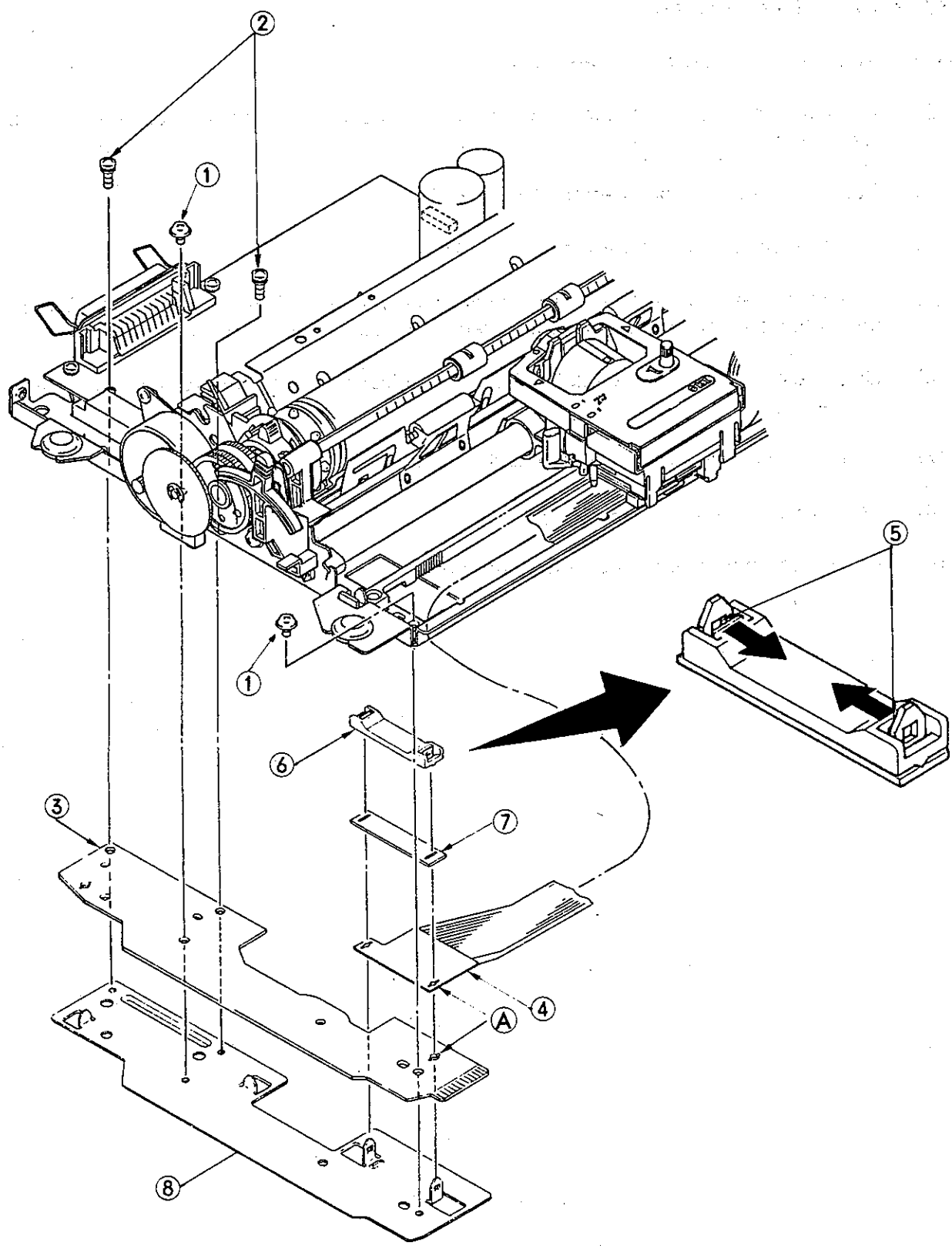
(6) Disengage two claws ⑤, and remove cord clamp ⑥, contact rubber ⑦, and carriage cable ④.

(7) Remove connection board ③ from circuit support ⑧.

(8) For reassembly, reverse the disassembly procedure.

***Notes:***

1. *Do not fold carriage cable ④.*
2. *Do not touch any of the terminals (contacts) Ⓐ directly by hand or fold them. Also make sure they are kept clean.*


2
1
1
5
6
3
7
4
A
8

### 3.2.16 Paper chute assembly

(1) Remove the upper cover (see 3.2.1).

(2) Remove the printer mechanism (See 3.2.11 step 7. The control board need not be removed.)

(3) Remove the LF motor assembly (see 3.2.12).

(4) Remove the platen assembly (see 3.2.14).

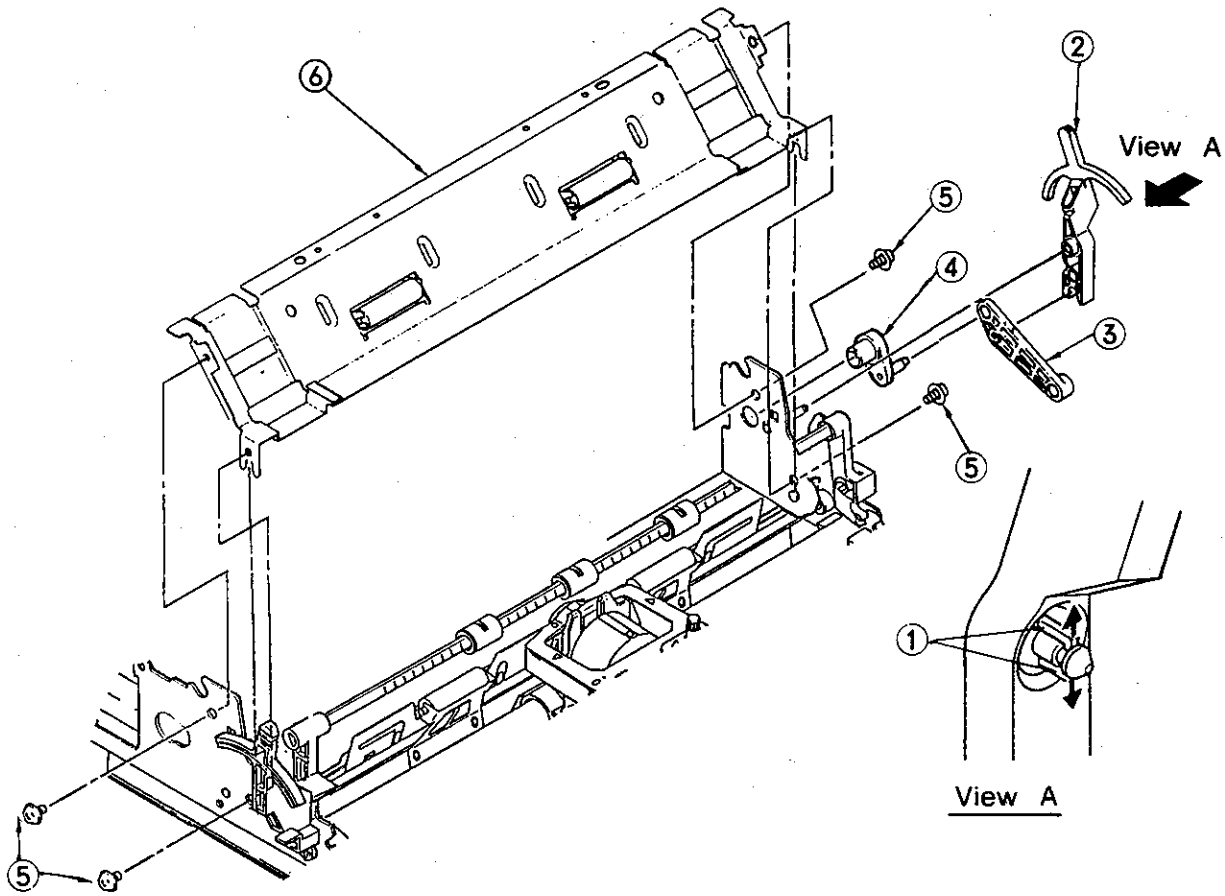
(5) Open two claws ①, with a minus screwdriver. With the claws opened, remove paper lock release lever ②. (Be careful because the claws are very small.)

(6) Disengage middle release link ③ from rear release link ④, and remove rear release link ④.

(7) Remove four screws ⑤ (two on each side).

(8) Remove paper chute assembly ⑥.

(9) For reassembly, reverse the disassembly procedure.


6
2
View A
5
4
3
5
1
View A
5

### 3.2.17 Bottom paper guide assembly

(1) Remove the upper cover (see 3.2.1).

(2) Remove the printer mechanism. (See 3.2.11 step 7. The control board need not be removed.)

(3) Remove the LF motor assembly (see 3.2.12).

(4) Remove the platen assembly (see 3.2.14).

(5) Remove the paper chute assembly (see 3.2.16).

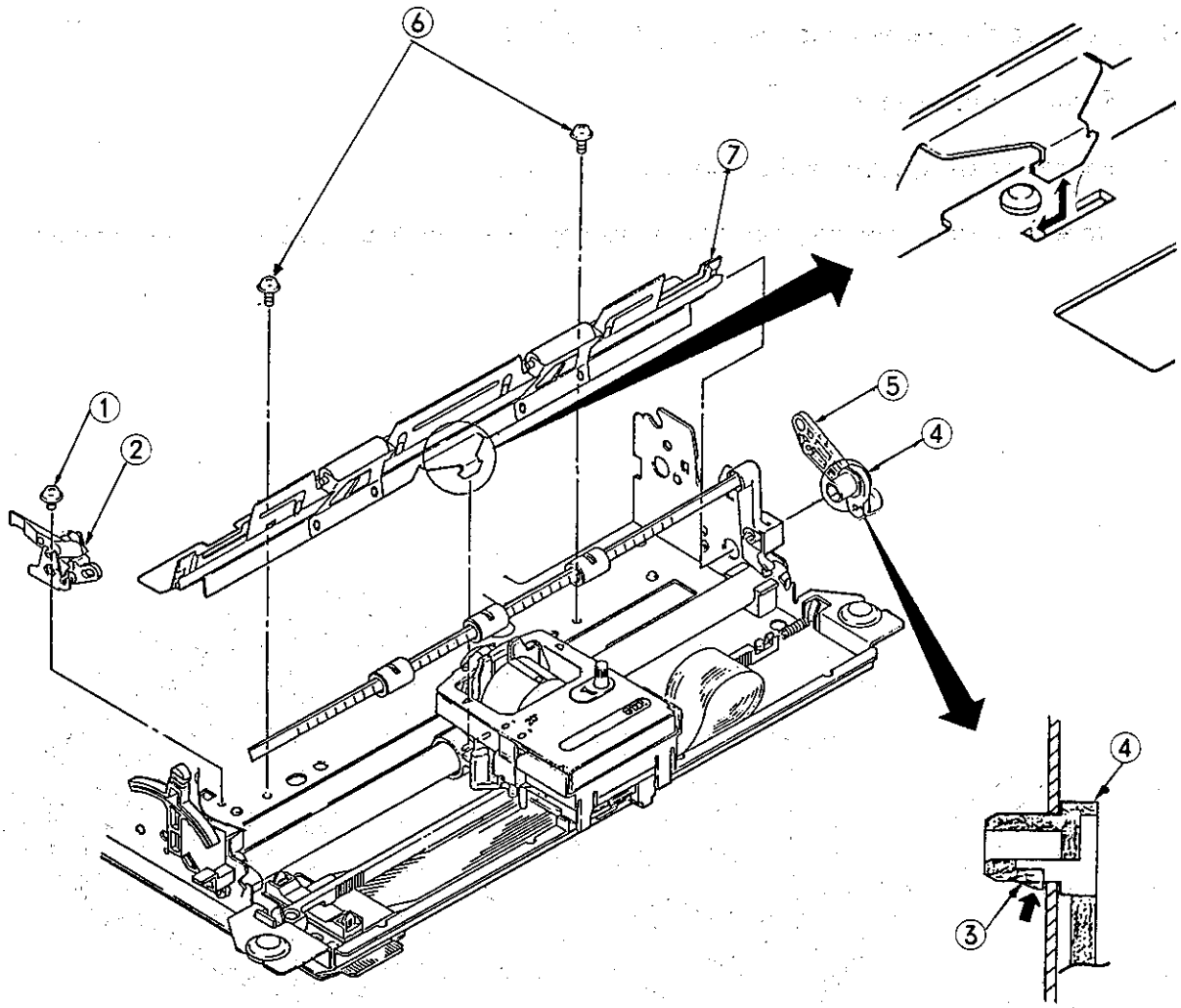
(6) Remove screw ① and remove the near-end lever assembly ②.

(7) Close the claws ③ and remove the front release link ④ together with middle release link ⑤.

(8) Remove two (three in ML183) screws ⑥.

(9) Remove bottom paper guide assembly ⑦.

(10) For reassembly, reverse the disassembly procedure.


6
7
1
2
5
4
4
3

### 3.2.18 Near-end lever and bracket

(1) Remove the upper cover (see 3.2.1).

(2) Remove the printer mechanism. (See 3.2.11 step 7. The control board need not be removed.)

(3) Remove the LF motor assembly (see 3.2.12).

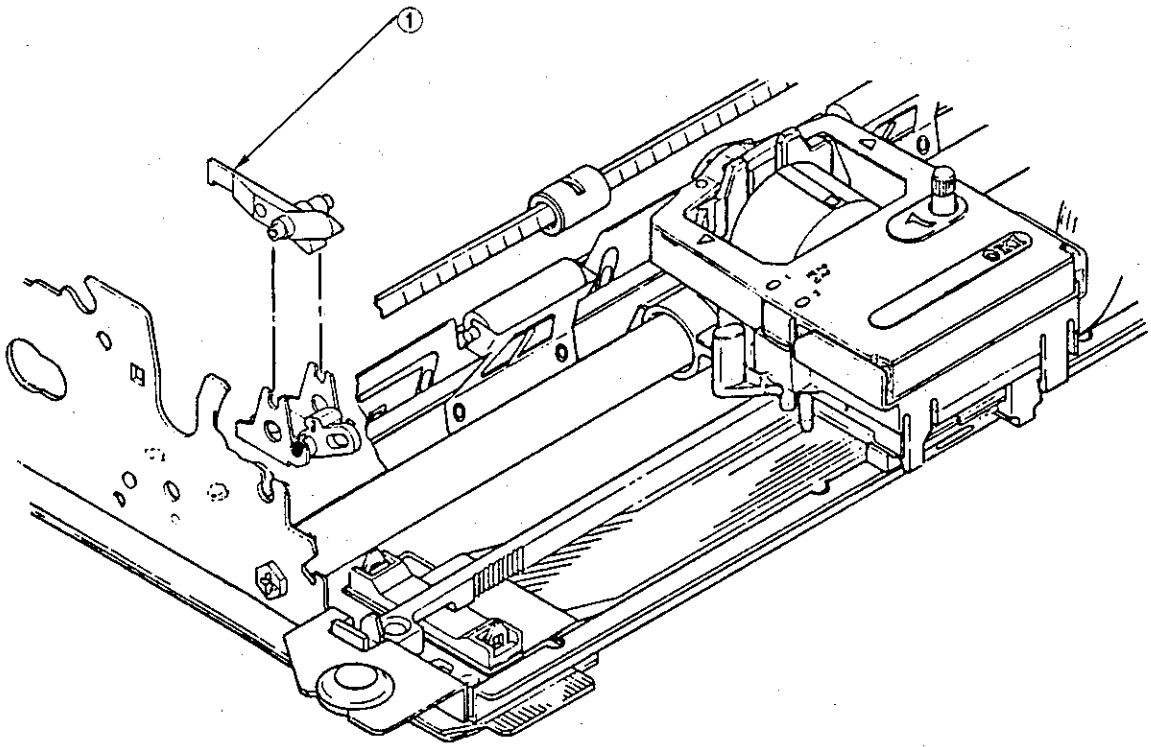
(4) Remove the platen assembly (see 3.2.14).

(5) Remove the paper chute assembly (see 3.2.16).

(6) Remove near-end lever ①.

(7) For reassembly, reverse the disassembly procedure.

***Note:*** *Near-end lever only can be removed by removing PCB (see 3.2.2) by pulling upward.*



### 3.2.19 Bottom near-end lever

(1) Remove the upper cover (see 3.2.1).

(2) Remove the printer mechanism (See 3.2.11 step 7. The control board need not be removed.)

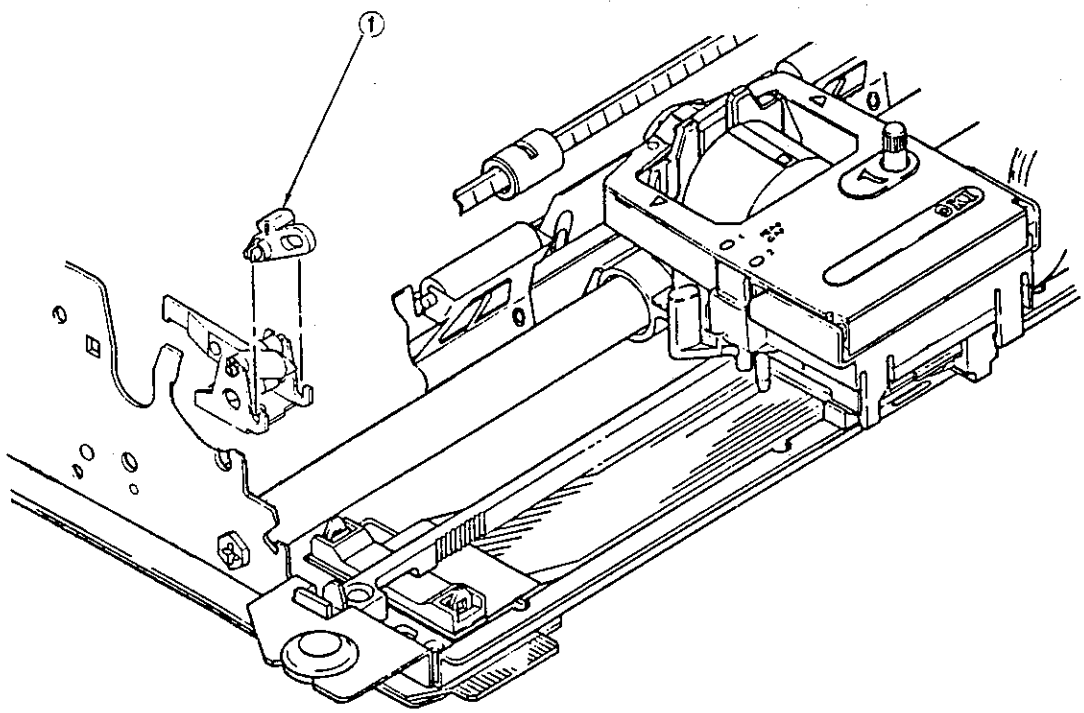
(3) Remove the LF motor assembly (see 3.2.12).

(4) Remove the platen assembly (see 3.2.14).

(5) Remove the paper chute assembly (see 3.2.16).

(6) Remove bottom near-end lever ①.

(7) For reassembly, reverse the disassembly procedure.



### 3.2.20 Carriage frame

(1) Remove the upper cover (see 3.2.1).

(2) Remove the printer mechanism. (See 3.2.11 step 7. The control board need not be removed.)

(3) Remove the column indicator bar (see 3.2.13).

(4) Remove the print head (see 3.2.6).

(5) Remove the ribbon feed gear assembly (see 3.2.7).

(6) Remove the space motor assembly (see 3.2.8).

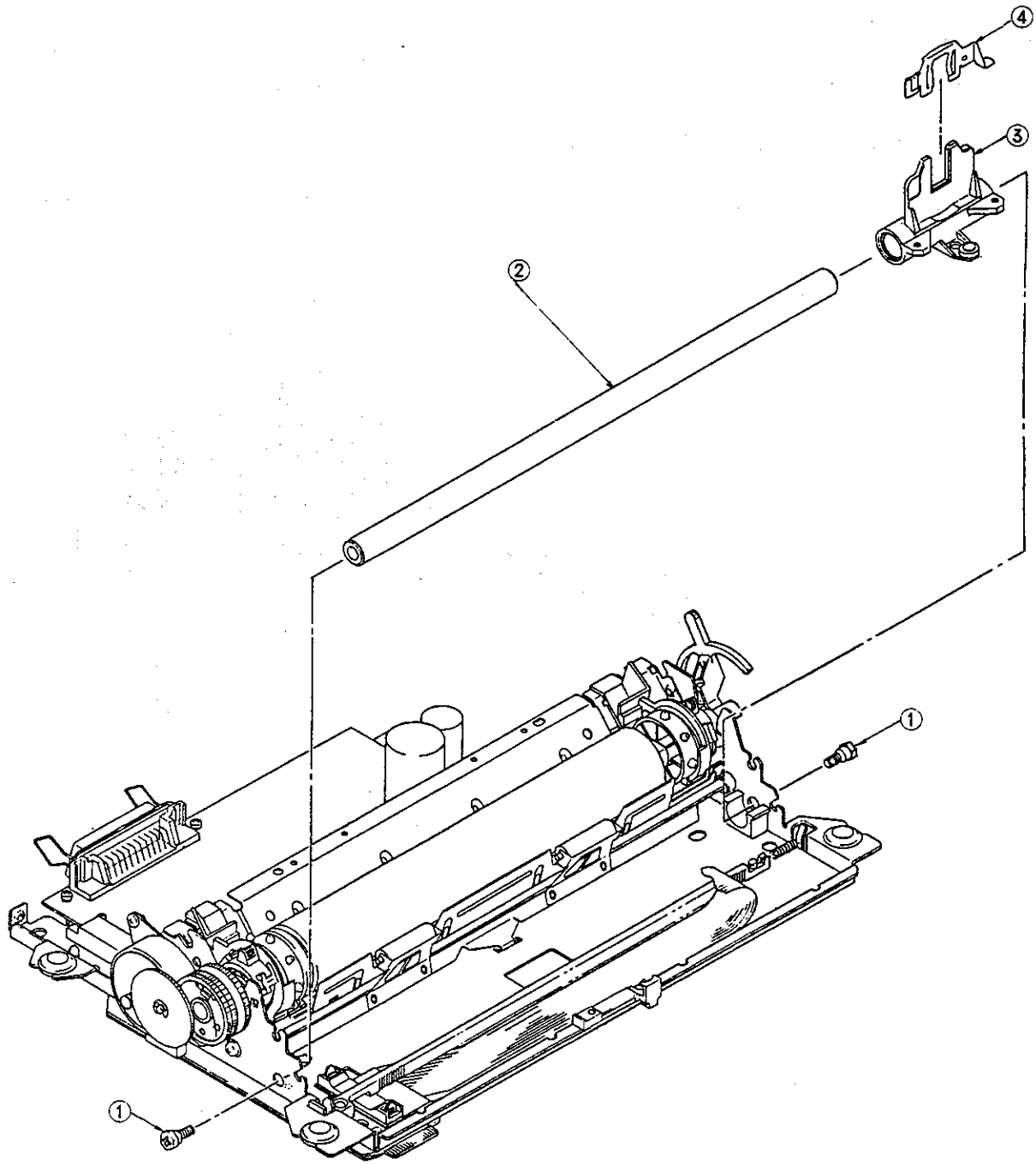
(7) Remove two screws ① (one on each side).

(8) Remove carriage shaft ② together with carriage frame ③.

(9) Remove carriage frame ③ from carriage shaft ②.

(10) Remove head clamp④.

(11) For reassembly, reverse the disassembly procedure.


④
③
②
①
①

### 3.2.21 Drive shaft (Optional tractor feed unit)

(1) Remove screw ①.

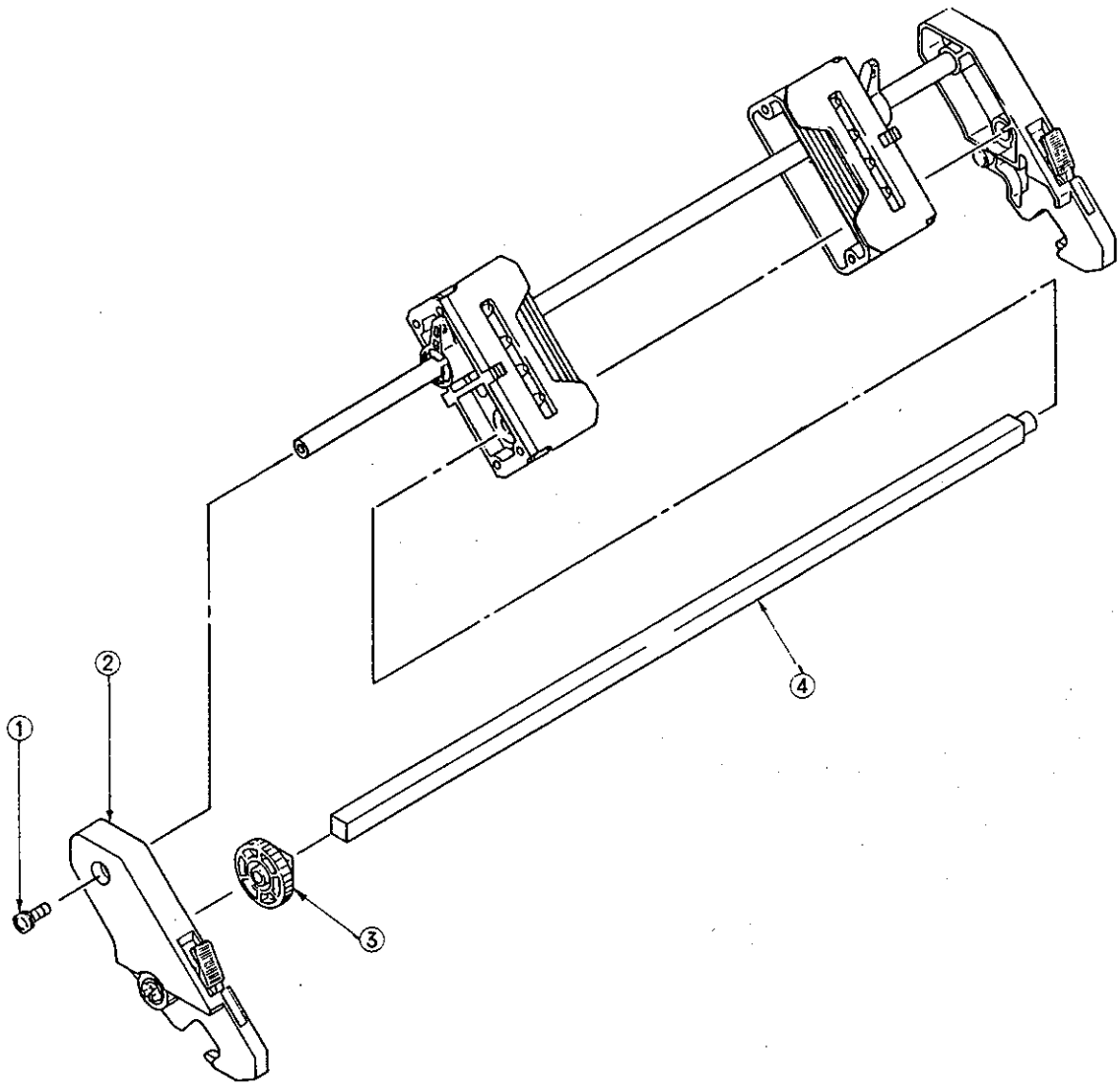
(2) Remove side frame assembly ②.

(3) Remove drive gear ③.

(4) Draw out drive shaft ④.

(5) For reassembly, reverse the disassembly procedure.

***Note:*** *When inserting the drive shaft, be careful to keep the sprocket pins in phase.*



### 3.2.22 Lock shaft (Optional tractor feed unit)

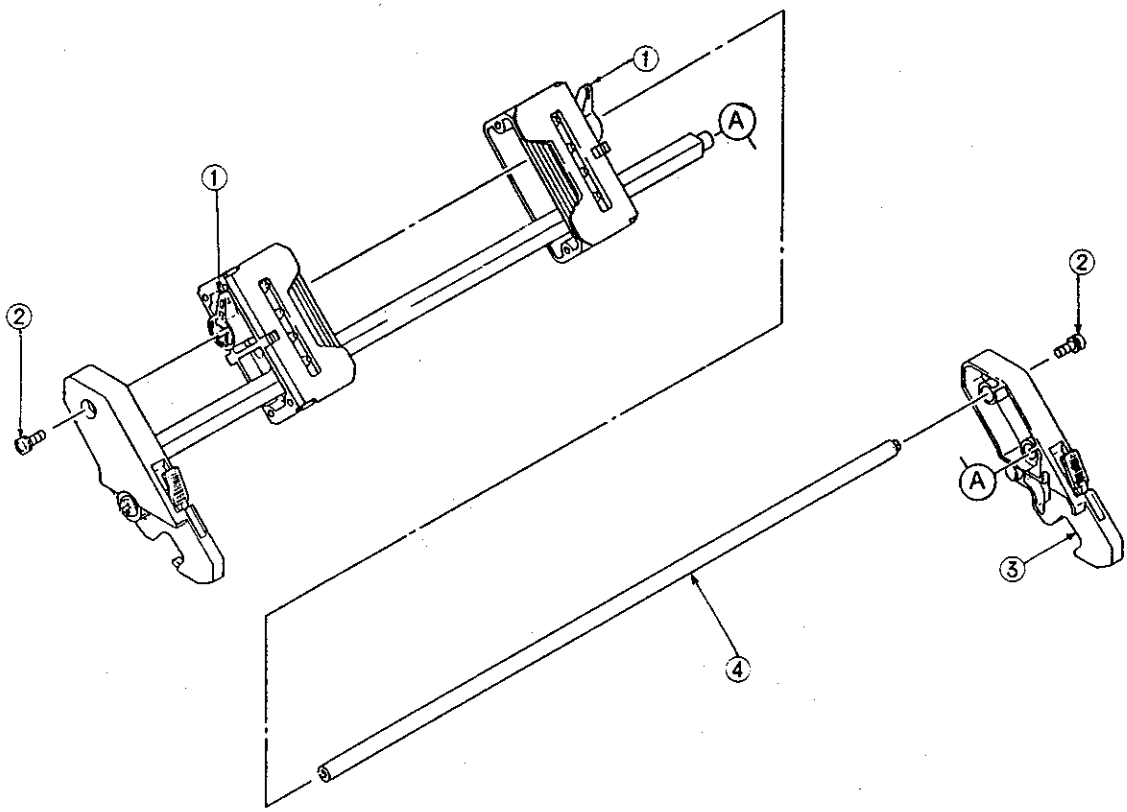
(1) Release lock lever ①.

(2) Remove two screws ② (one on each side).

(3) Remove side frame ③.

(4) Draw out lock shaft④.

(5) For reassembly, reverse the disassembly procedure.



### 3.2.23 Pin tractor (R) assembly and pin tractor (L) assembly (Optional tractor feed unit)

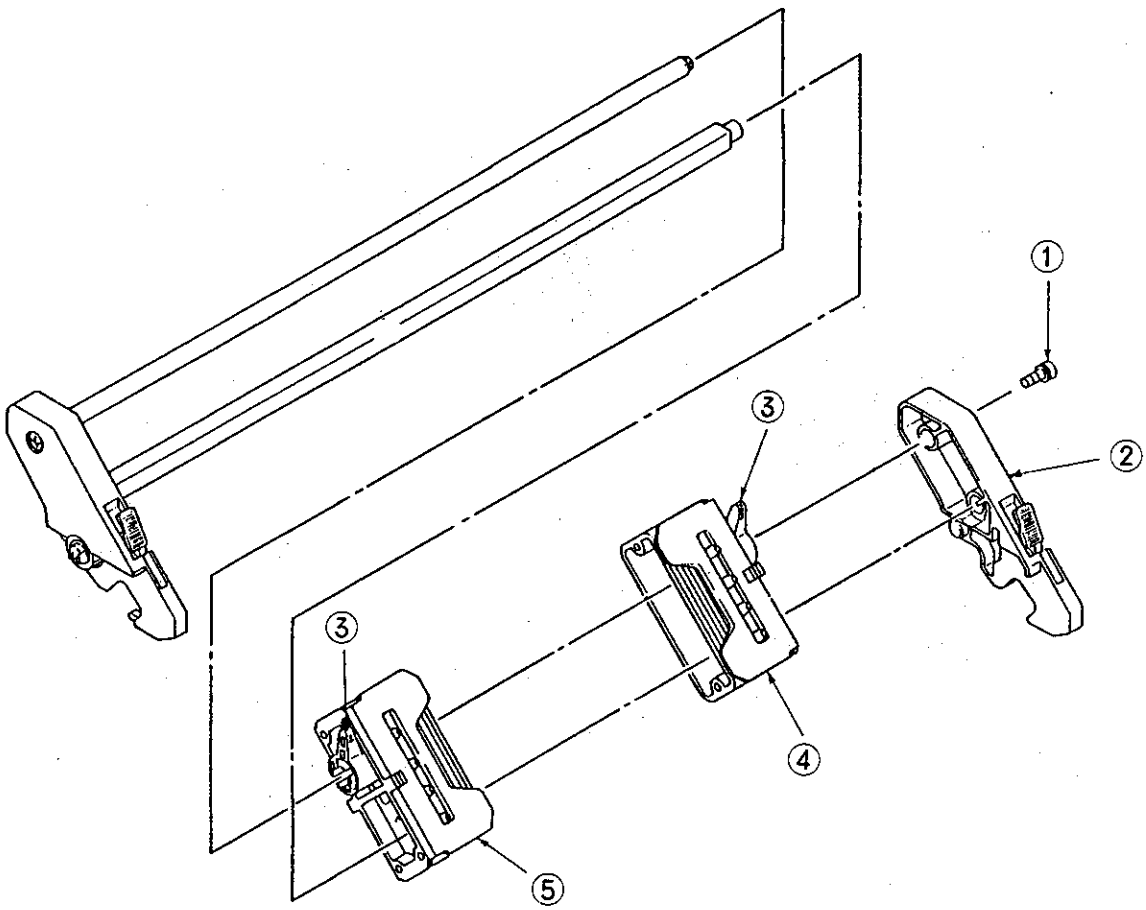
(1) Remove screw ①.

(2) Remove side frame ②.

(3) Release lock levers ③, then remove pin tractor (R) assembly ④ and pin tractor (L) assembly ⑤.

(4) For reassembly, reverse the disassembly procedure.

***Note:*** *When inserting the pin tractor assemblies, be careful to keep the sprocket pins in phase.*



### 3.2.24 Belt (Optional tractor feed unit)

(1) Remove the pin tractor assembly (see 3.2.23).

(2) Remove lock lever ①.

(3) Open tractor cover ②.

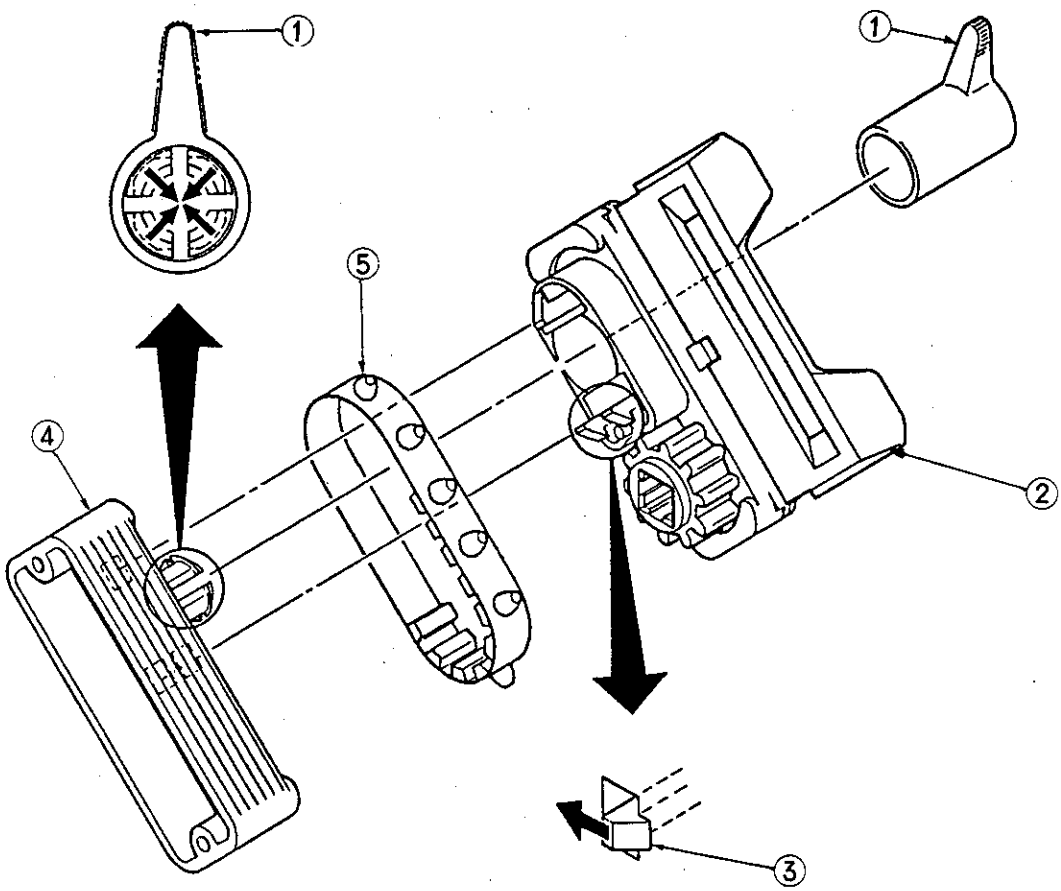
(4) Disengage three claws ③.

(5) Remove tractor frame ④.

(6) Remove belt ⑤.

(7) For reassembly, reverse the disassembly procedure.

***Note:*** *When inserting the belt, be careful to keep the sprocket pins of the both tractor assemblies in phase.*



# 4. CLEANING

# 4. CLEANING

***Caution:*** .
1. *Be sure to turn OFF the AC POWER switch before cleaning.*
2. *Be careful not to let paper lint, etc. get inside the mechanism.*

The printer interior should be cleaned periodically as follows:

| | |
|---|---|
| Period: | Either 6 months or 300 operating hours, whichever comes first |
| Time required for cleaning: | About 10 minutes |
| Tool: | Dry, soft cloth (such as gauze)<br>(and vacuum cleaner if available) |
| Parts to be cleaned: | See table 4-1. |

**Table 4-1 Parts To Be Cleaned**

| Parts | Description |
|---|---|
| Carriage and its surroundings | Remove paper lint, dust, dirt, and ribbon lint. |
| Paper path | |
| Paper-end sensor | Remove paper lint and dust attached to the sensor. (Refer to figure 9 on page AA-26.) |

# 5. ADJUSTMENT

# 5. ADJUSTMENT

Head-gap adjustment

Tools:
- Thickness gauge set
- Phillips screwdriver No. 2-200
- Metal rod of about 0.04 inch (1 mm) diameter and 3 inches (76 mm) long (An extended paper clip can be applicable.)

Adjusting procedure: (see figure 5-1)

(1) Turn OFF the AC POWER switch and remove the AC input plug from the AC receptacle.

(2) Remove the access cover.

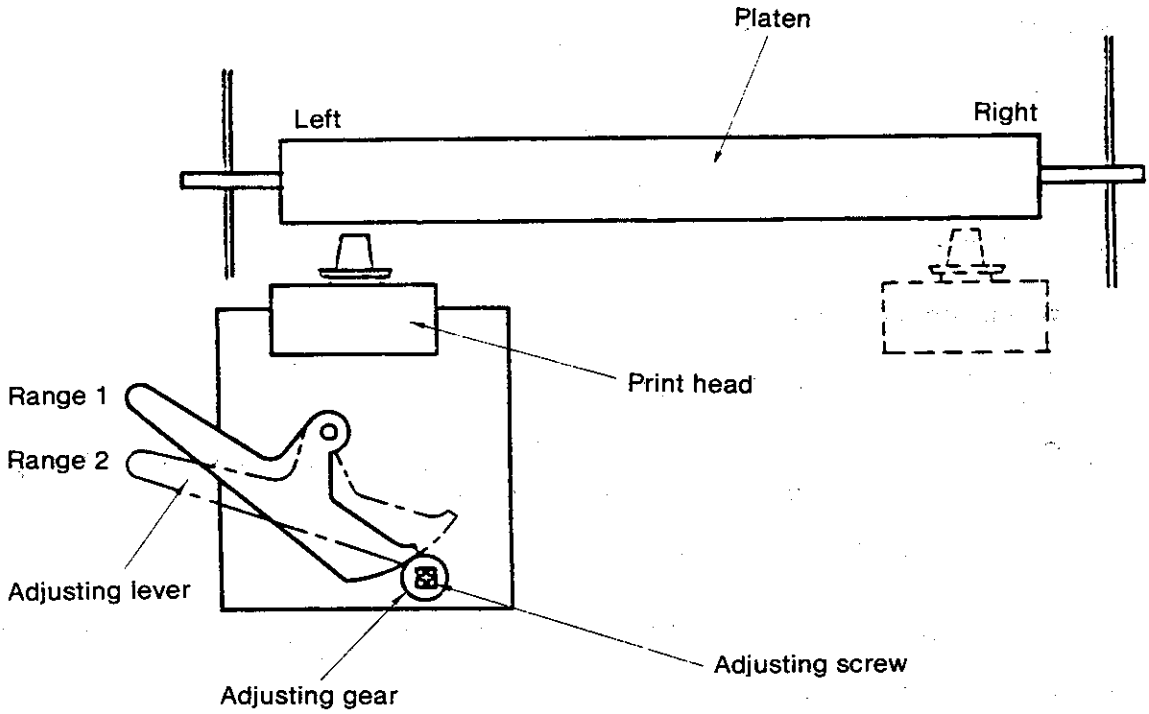
(3) Remove the ribbon cartridge.

(4) Set the adjusting lever to range 1.

(5) Insert the 0.019-inch (0.48-mm) thickness gauge between the platen and print head. Make sure that the thickness gauge can be smoothly inserted if rubbed a little. Carry out this check at the right end, and left end of the platen.

(6) If gap adjustment is required, press down the adjusting gear with the metal rod to disengage the gear from the adjusting lever, and adjust the gap by turning the adjusting screw with the screwdriver.

(7) After the adjustment, check the gap between the platen and print head again. The adjustment range is 0.016 to 0.02 inch (0.4 to 0.5 mm).


Platen
Left
Right
Print head
Range 1
Range 2
Adjusting lever
Adjusting gear
Adjusting screw

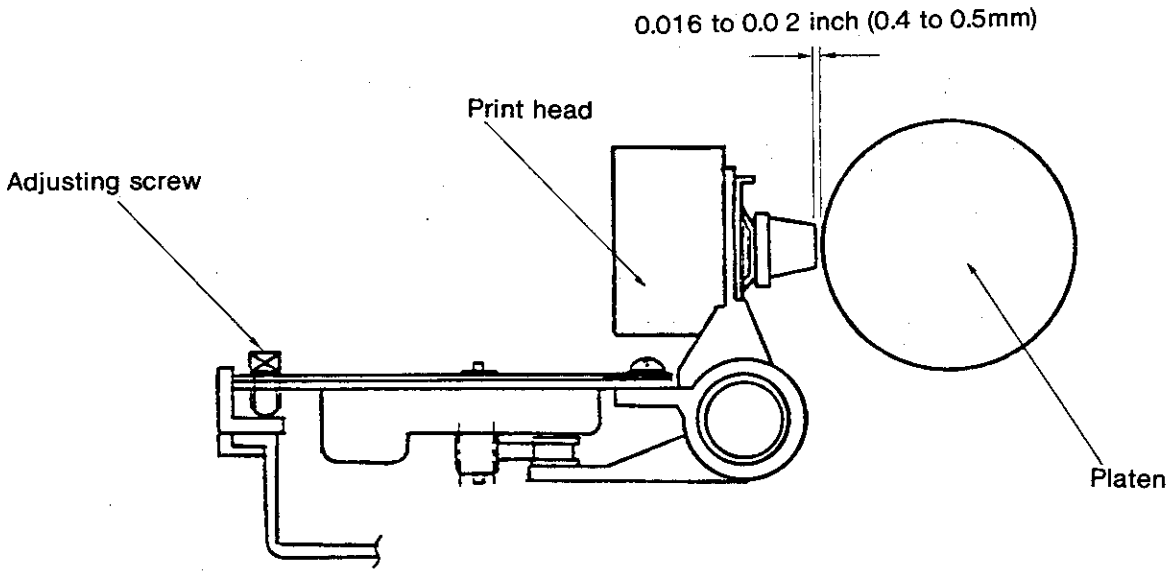

0.016 to 0.0 2 inch (0.4 to 0.5mm)
Print head
Adjusting screw
Platen

**Figure 5-1**

# 6. TROUBLESHOOTING AND REPAIR

# 6. TROUBLESHOOTING AND REPAIR

## 6.1 Items to be Checked Before Repair

If repair is requested by a user, check whether the printer can be fixed by the troubleshooting procedure described in the User's Manual.

If possible, ask the user under what conditions the trouble occurred, and record the answer.

Before troubleshooting, let the printer operate under the same conditions as at the time of trouble occurrence and check whether the trouble is reproducible. If the trouble is not reproducible, let the printer perform test printing, and then proceed to troubleshooting.

## 6.2 Method of Troubleshooting

First verify the trouble condition, then locate the trouble in accordance with the detailed procedure given for each item in table 6-1.

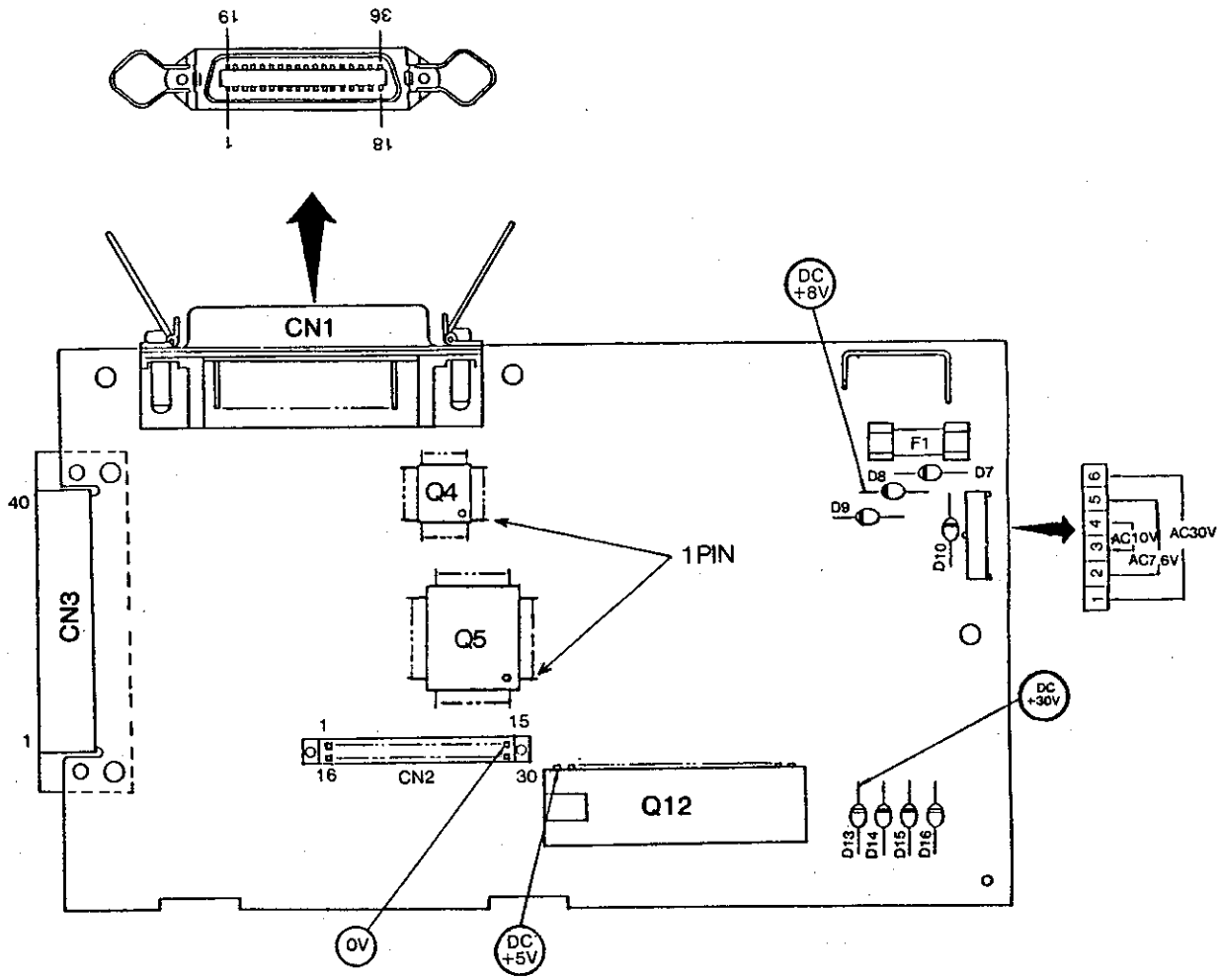
Before remedying the trouble, thoroughly read the precautions in Section 3.1.

The checkpoints for SLMC board and SLSQ board are shown in figure 6-1 and the connector locations and pin numbers are shown in figure 6-2.

**Table 6-1**

| Division | Trouble description | Item |
|---|---|---|
| Trouble at power-on | The carriage does not move at all. | 1 |
| | The carriage does not move at all, and the POWER LED is lighted | 2 |
| | The carriage operation is abnormal (runway, vibration, incomplete homing). | 3 |
| | The homing operation is normal, but indicator display is abnormal. | 4 |
| | The fuse (F1) on the power supply board (SLPB) blows. | 5 |
| | The fuse (F1) on the control board (SLMC) blows. | 6 |
| Trouble during data reception/ printing | Neither spacing nor printing operation occurs. | 7 |
| | The spacing operation is normal, but the printing operation is not performed. | 8 |
| | The printing operation stops. | 9 |
| | Wrong characters are printed or some characters are not printed. | 10 |
| | Some dots are not printed. | 11 |
| | Print is not dark enough. | 12 |
| | The line feed operation is not performed. | 13 |
| | The fuse (F1) on the power supply board blows. | 14 |
| | A switch on the operation panel does not function. (The carriage returns to the home position at the power-on time.) | 15 |

SLMC Board




SLSQ Board

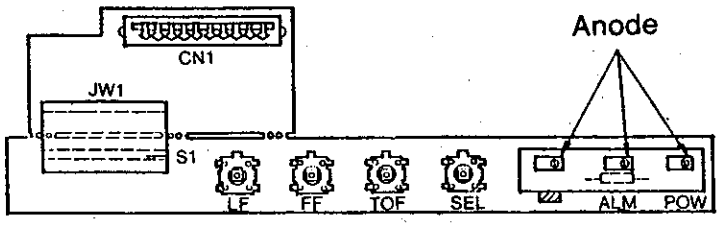



**Figure 6-1 Checkpoints of Printed Circuit Board**

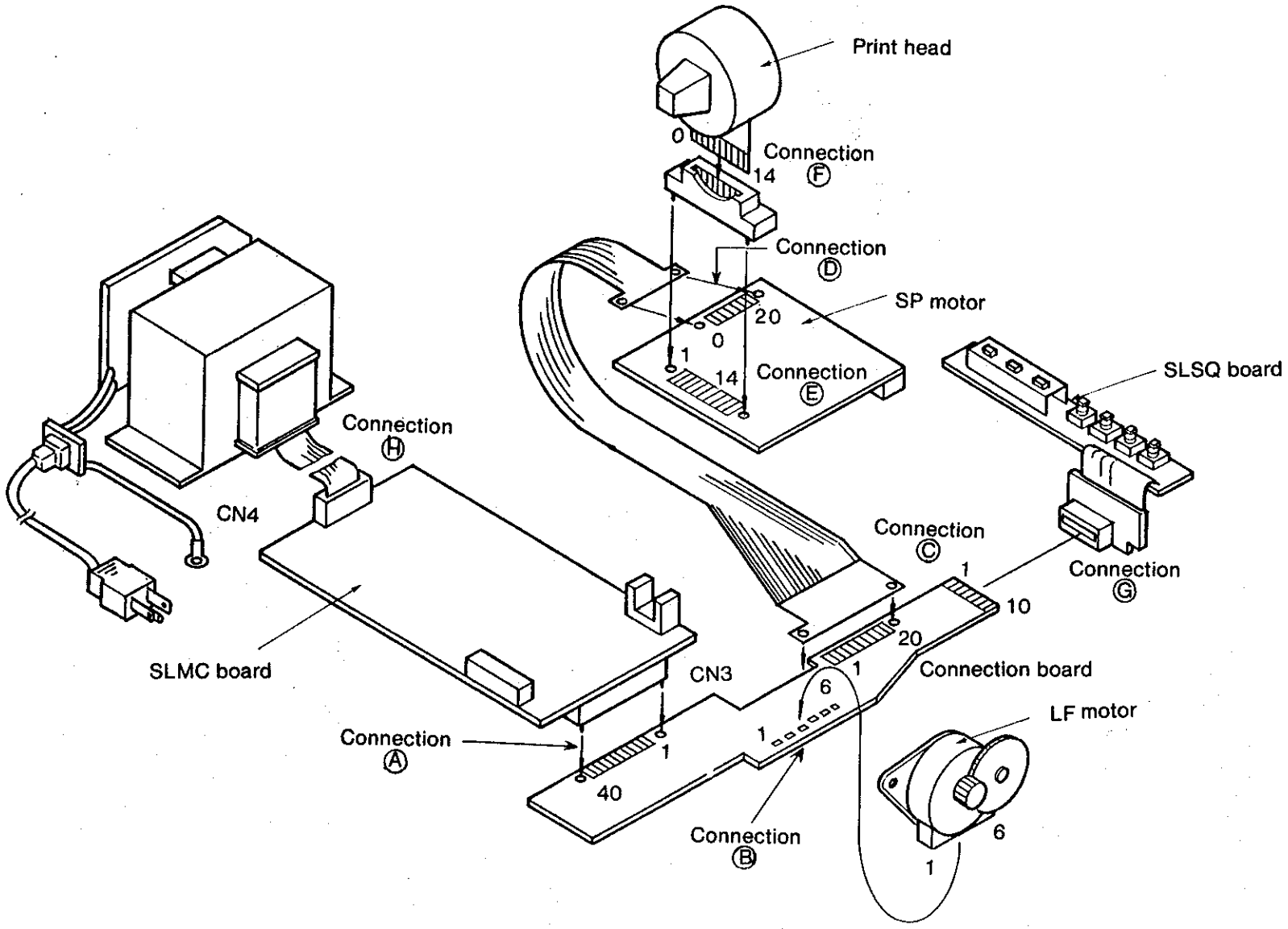
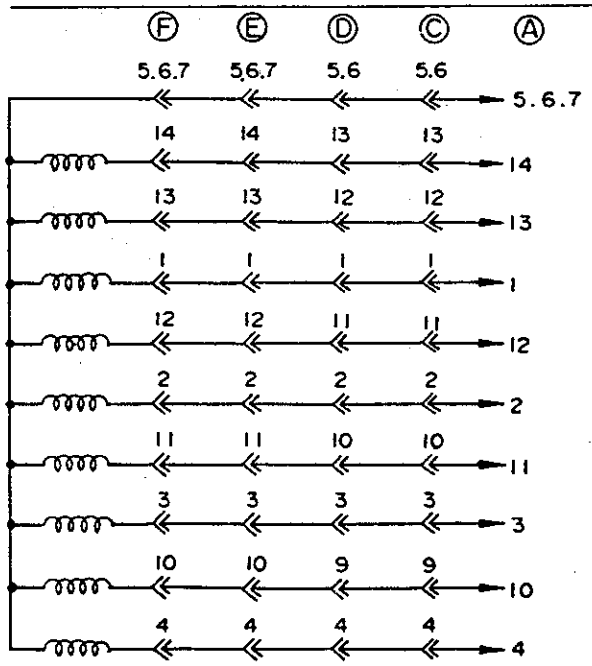



**Figure 6-2 Connector Locations and Pin Numbers**

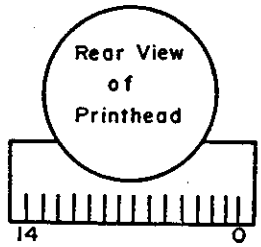
## 6.3 Connection Circuit and Resistance Check for Print Head and LF/SP Motor

(1) Print head.

Resistance of each coil should be about 20 Ω.

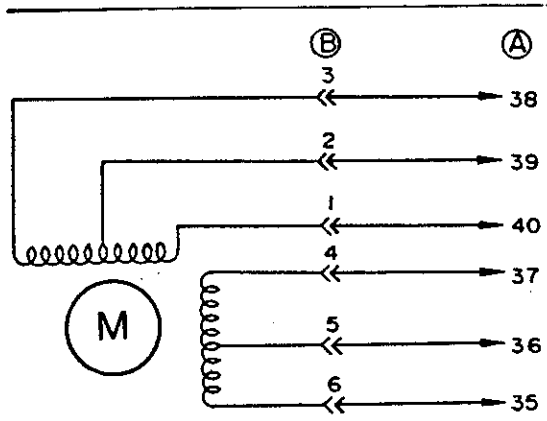



| Pins at connection | Signals | Pins on print head |
|---|---|---|
| 5.6.7 | Common | 5, 6, 7 |
| 14 | #1 | 14 |
| 13 | #2 | 13 |
| 1 | #3 | 1 |
| 12 | #4 | 12 |
| 2 | #5 | 2 |
| 11 | #6 | 11 |
| 3 | #7 | 3 |
| 10 | #8 | 10 |
| 4 | #9 | 4 |

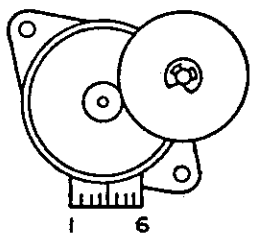



(2) Line feed motor

Resistances of each coil should be about 70 Ω.

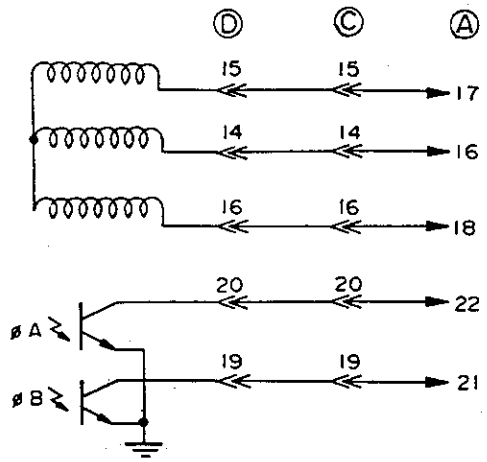
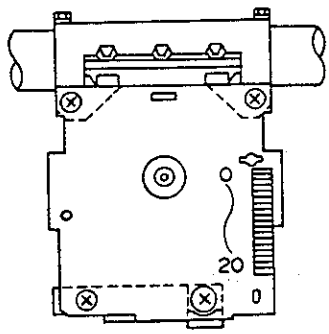


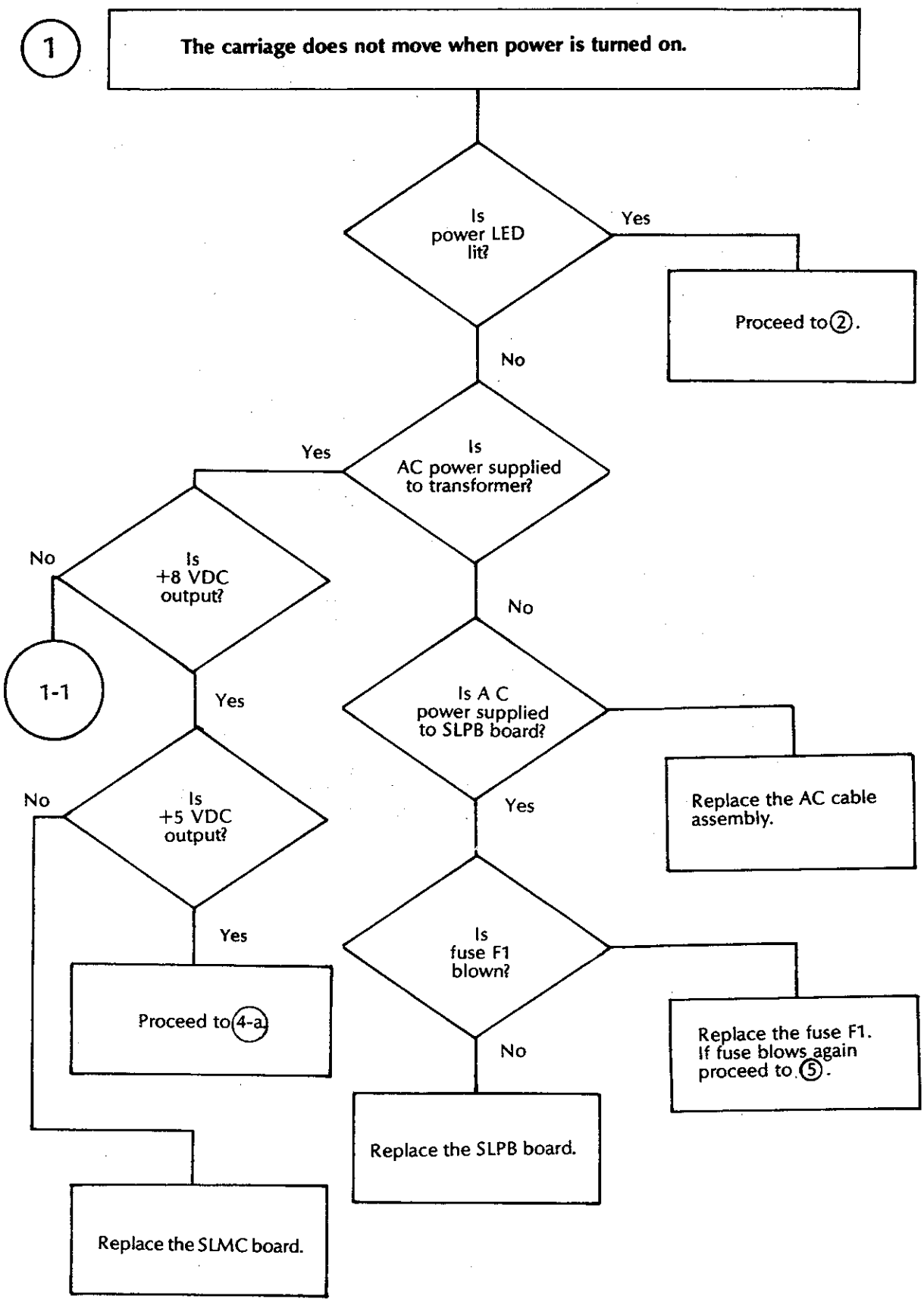

| Pins at connection | Signals | Pins on LF moter |
|---|---|---|
| 38 | φ1 | 3 |
| 39 | Common | 2 |
| 40 | φ3 | 1 |
| 37 | φ2 | 4 |
| 36 | Common | 5 |
| 35 | φ4 | 6 |

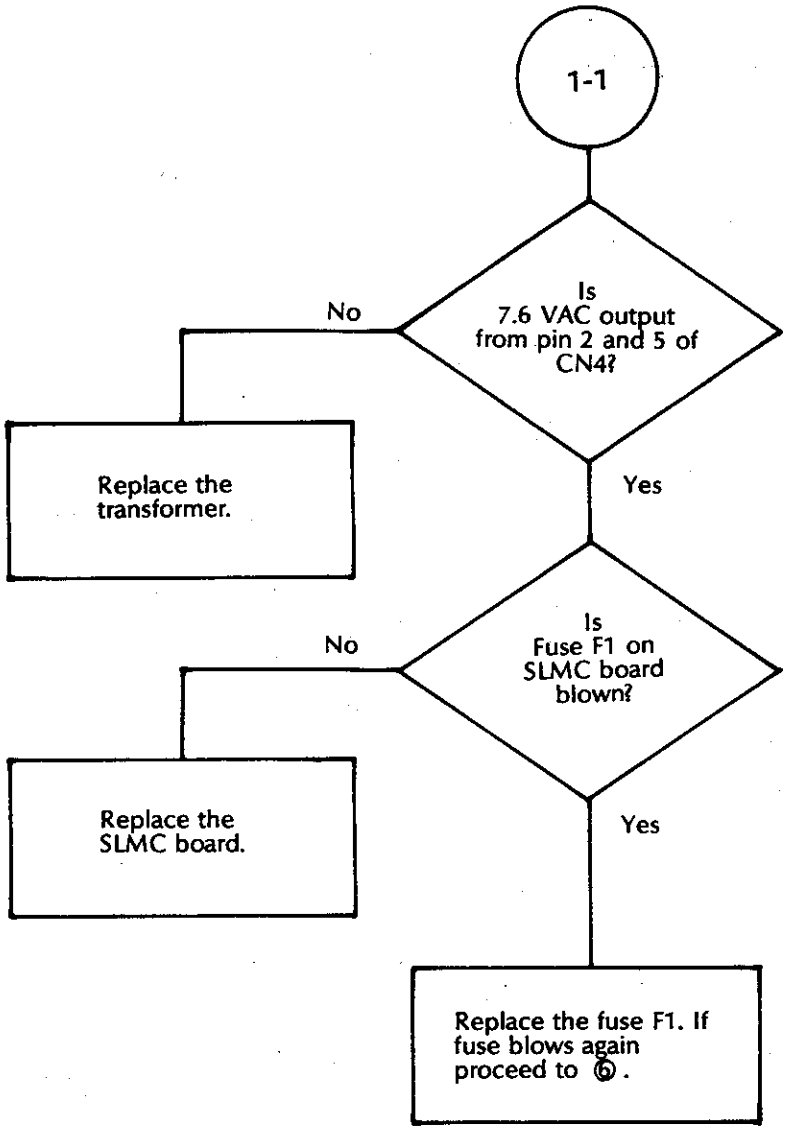


(3) Space motor

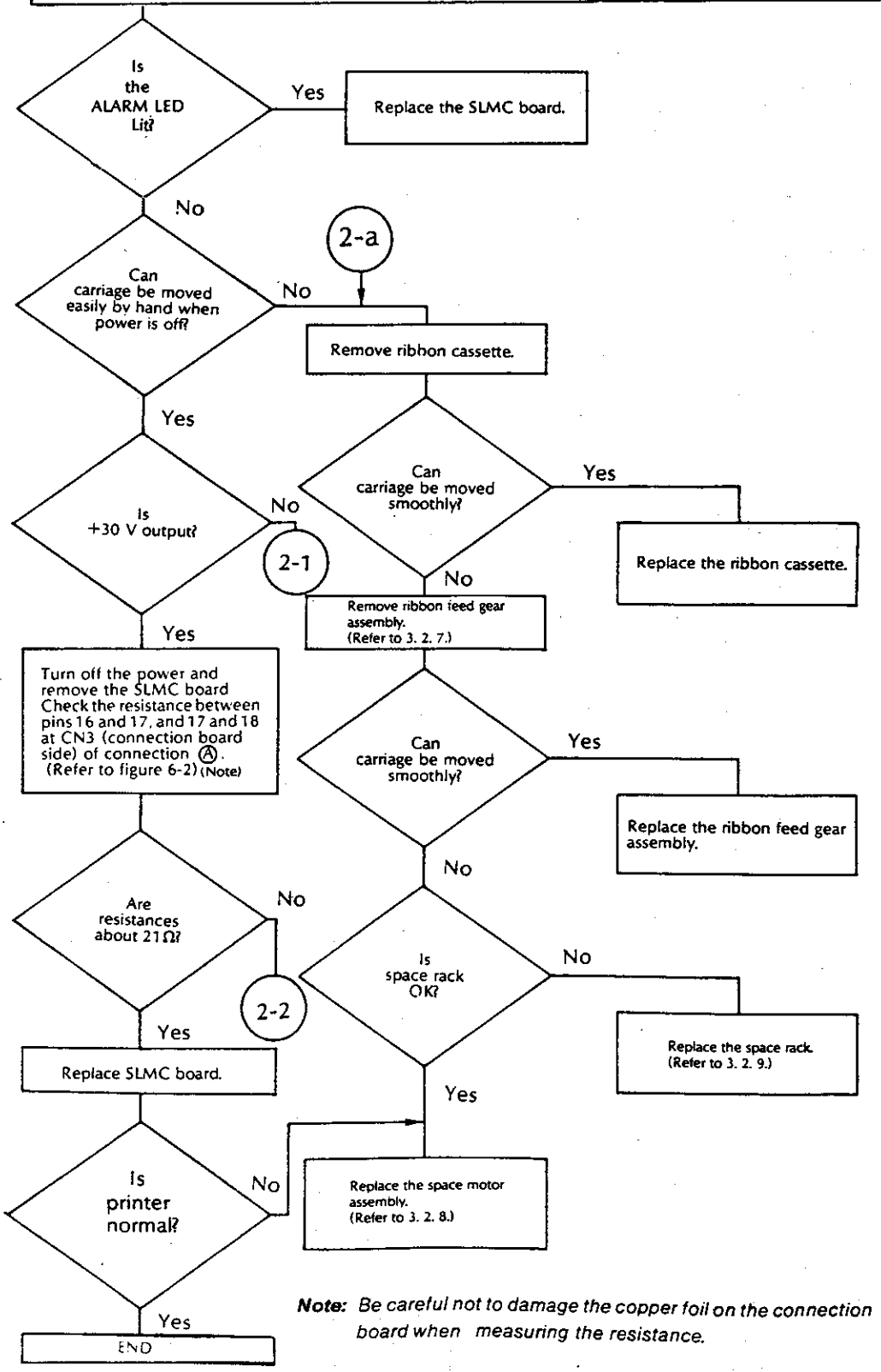
Resistances of each phase should be about 21 Ω.

| Pins at connection | Signals | Pins on SP moter |
|---|---|---|
|  | |  |
| 15 → 17 | V | 15 |
| 14 → 16 | U | 14 |
| 16 → 18 | W | 16 |
| 20 → 22 | φA | |
| 19 → 21 | φB | |

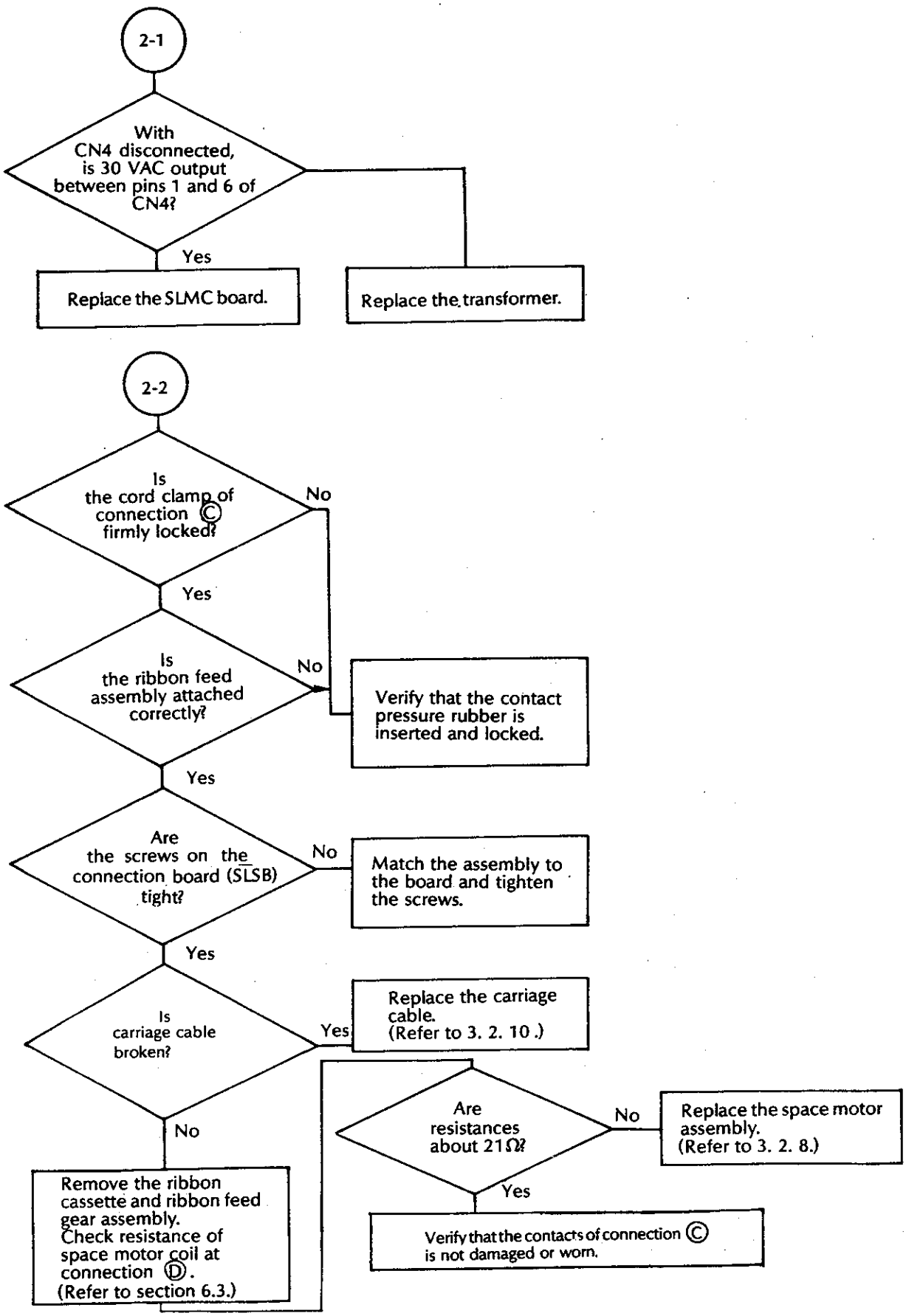

1
The carriage does not move when power is turned on.
Is power LED lit?
Yes
Proceed to ②.
No
Is AC power supplied to transformer?
Yes
No
Is +8 VDC output?
No
1-1
Yes
Is +5 VDC output?
No
Yes
Proceed to 4-a.
Replace the SLMC board.
Is A C power supplied to SLPB board?
No
Replace the AC cable assembly.
Yes
Is fuse F1 blown?
Yes
Replace the fuse F1. If fuse blows again proceed to ⑤.
No
Replace the SLPB board.


1-1
Is
7.6 VAC output
from pin 2 and 5 of
CN4?
No
Yes
Replace the
transformer.
Is
Fuse F1 on
SLMC board
blown?
No
Yes
Replace the
SLMC board.
Replace the fuse F1. If
fuse blows again
proceed to ⑥.

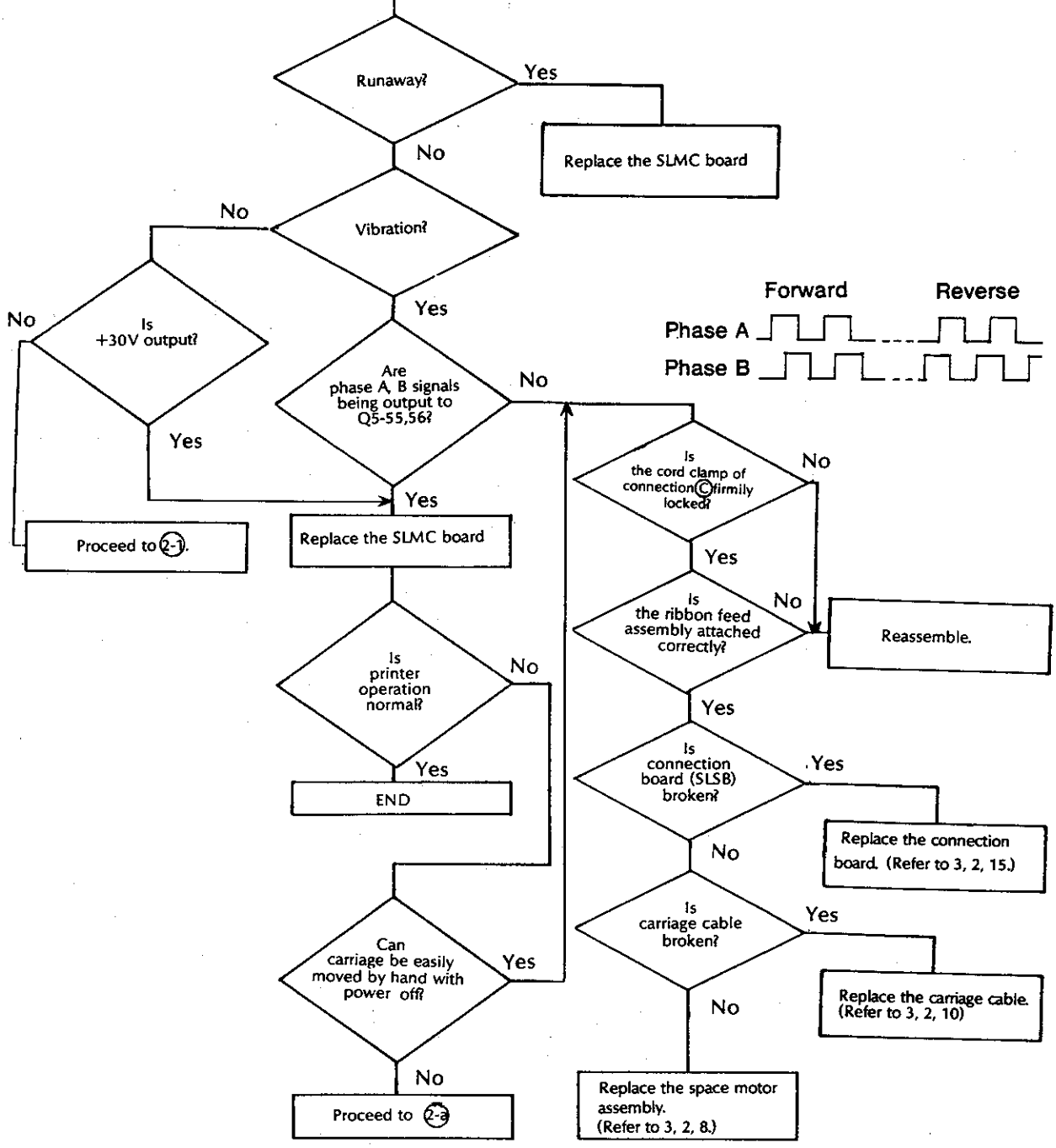
## 2 When power is turned on, the Power LED lights but the carriage does not move.

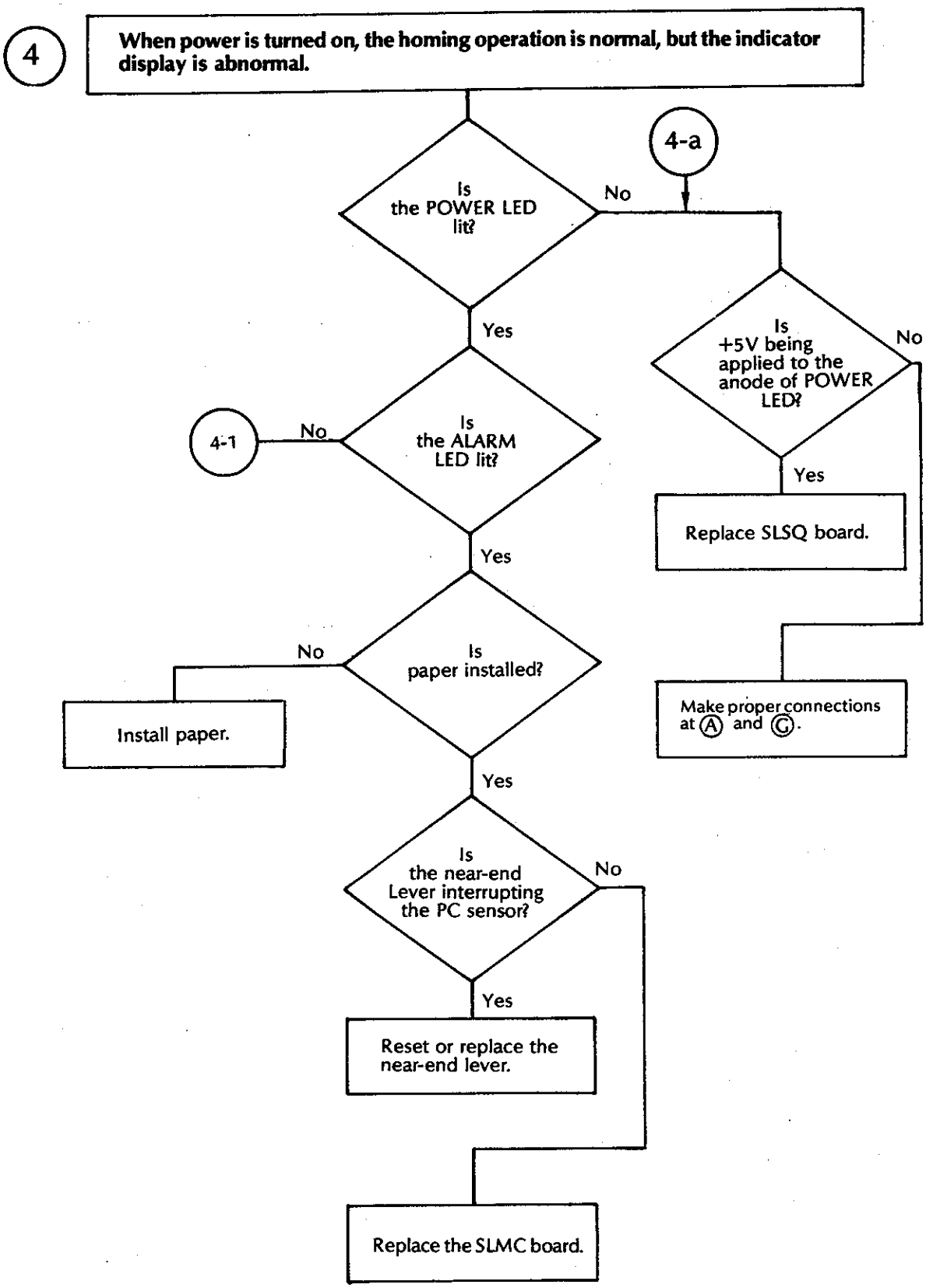


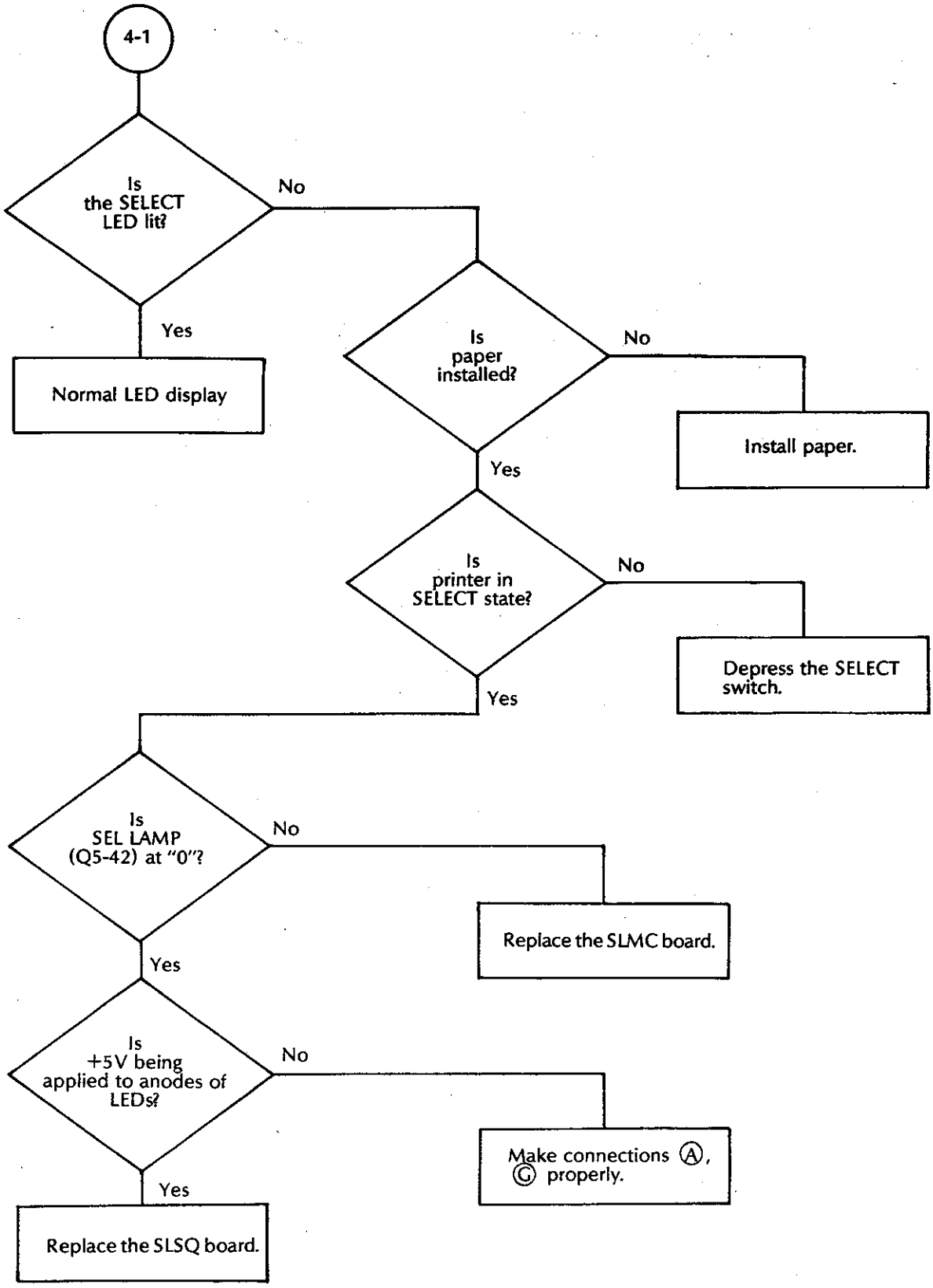

***Note:*** *Be careful not to damage the copper foil on the connection board when measuring the resistance.*


2-1
With CN4 disconnected, is 30 VAC output between pins 1 and 6 of CN4?
Yes
Replace the SLMC board.
Replace the transformer.
2-2
Is the cord clamp of connection Ⓒ firmly locked?
No
Yes
Is the ribbon feed assembly attached correctly?
No
Verify that the contact pressure rubber is inserted and locked.
Yes
Are the screws on the connection board (SLSB) tight?
No
Match the assembly to the board and tighten the screws.
Yes
Is carriage cable broken?
Yes
Replace the carriage cable. (Refer to 3. 2. 10 .)
No
Are resistances about 21Ω?
No
Replace the space motor assembly. (Refer to 3. 2. 8.)
Yes
Verify that the contacts of connection Ⓒ is not damaged or worn.
Remove the ribbon cassette and ribbon feed gear assembly. Check resistance of space motor coil at connection Ⓓ. (Refer to section 6.3.)

## 3 When power is turned on, carriage operation is abnormal (runaway, vibration, incomplete homing)

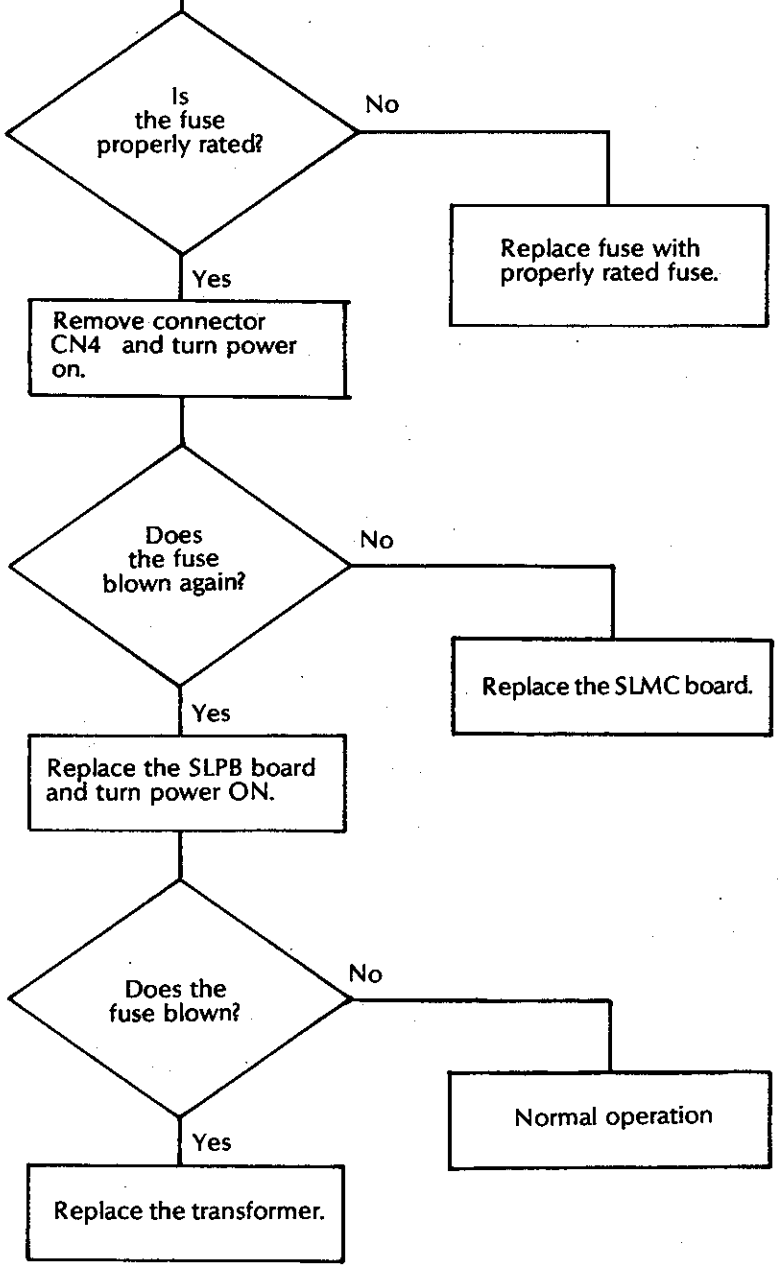


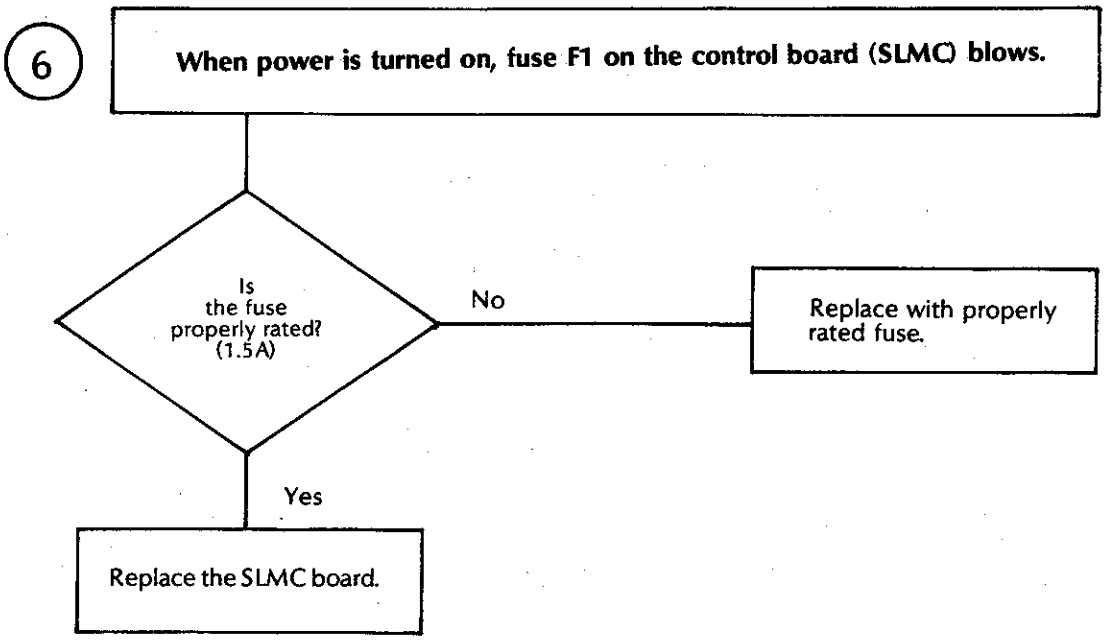

4
When power is turned on, the homing operation is normal, but the indicator display is abnormal.
Is the POWER LED lit?
No
4-a
Yes
Is +5V being applied to the anode of POWER LED?
No
Yes
Replace SLSQ board.
4-1
No
Is the ALARM LED lit?
Yes
Is paper installed?
No
Install paper.
Make proper connections at Ⓐ and Ⓖ.
Yes
Is the near-end Lever interrupting the PC sensor?
No
Yes
Reset or replace the near-end lever.
Replace the SLMC board.

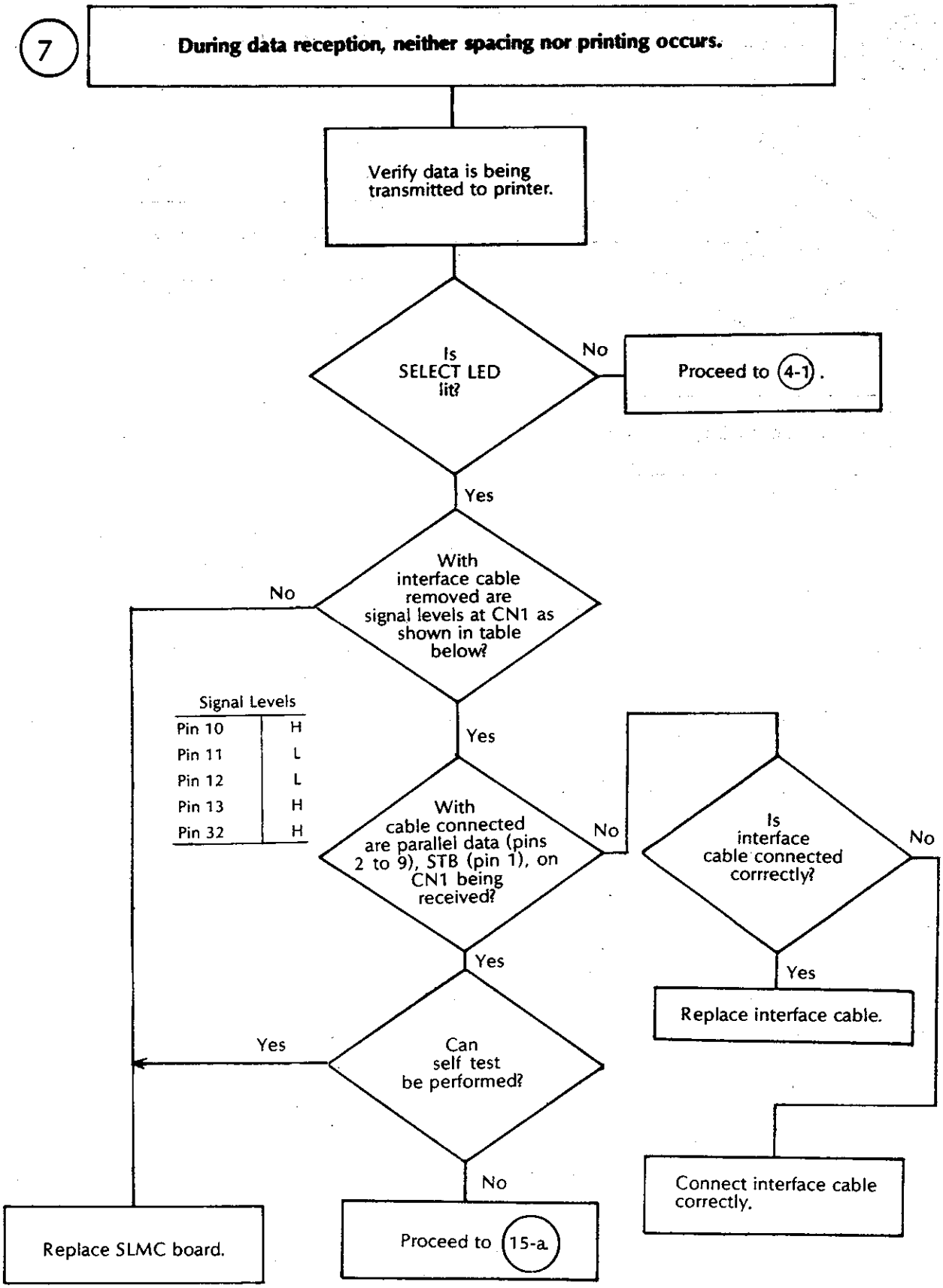

4-1
Is the SELECT LED lit?
No
Yes
Normal LED display
Is paper installed?
No
Install paper.
Yes
Is printer in SELECT state?
No
Depress the SELECT switch.
Yes
Is SEL LAMP (Q5-42) at "0"?
No
Replace the SLMC board.
Yes
Is +5V being applied to anodes of LEDs?
No
Make connections Ⓐ, Ⓖ properly.
Yes
Replace the SLSQ board.

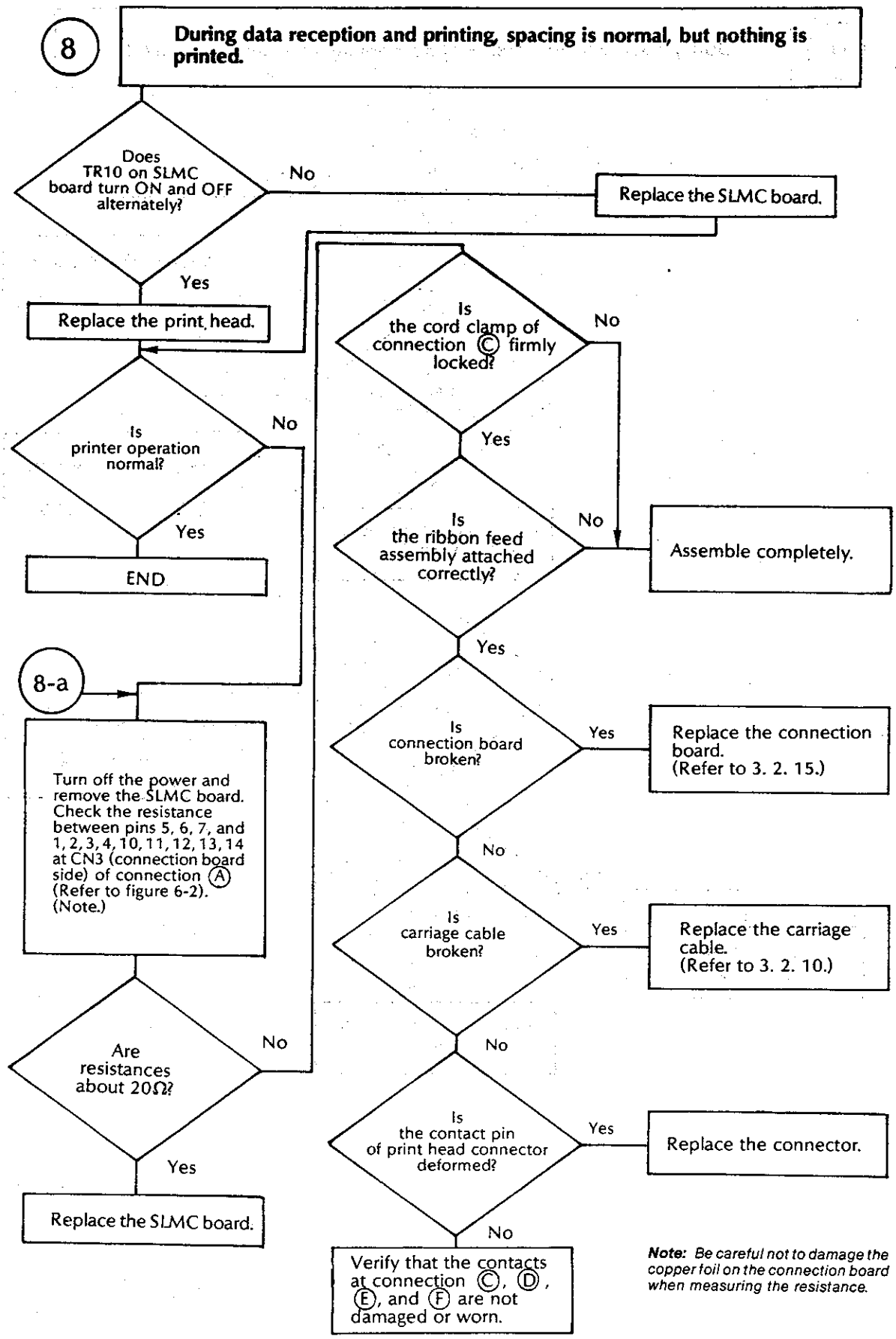
5

**When power is turned on, fuse F1 on power supply board (SLPB) blows.**

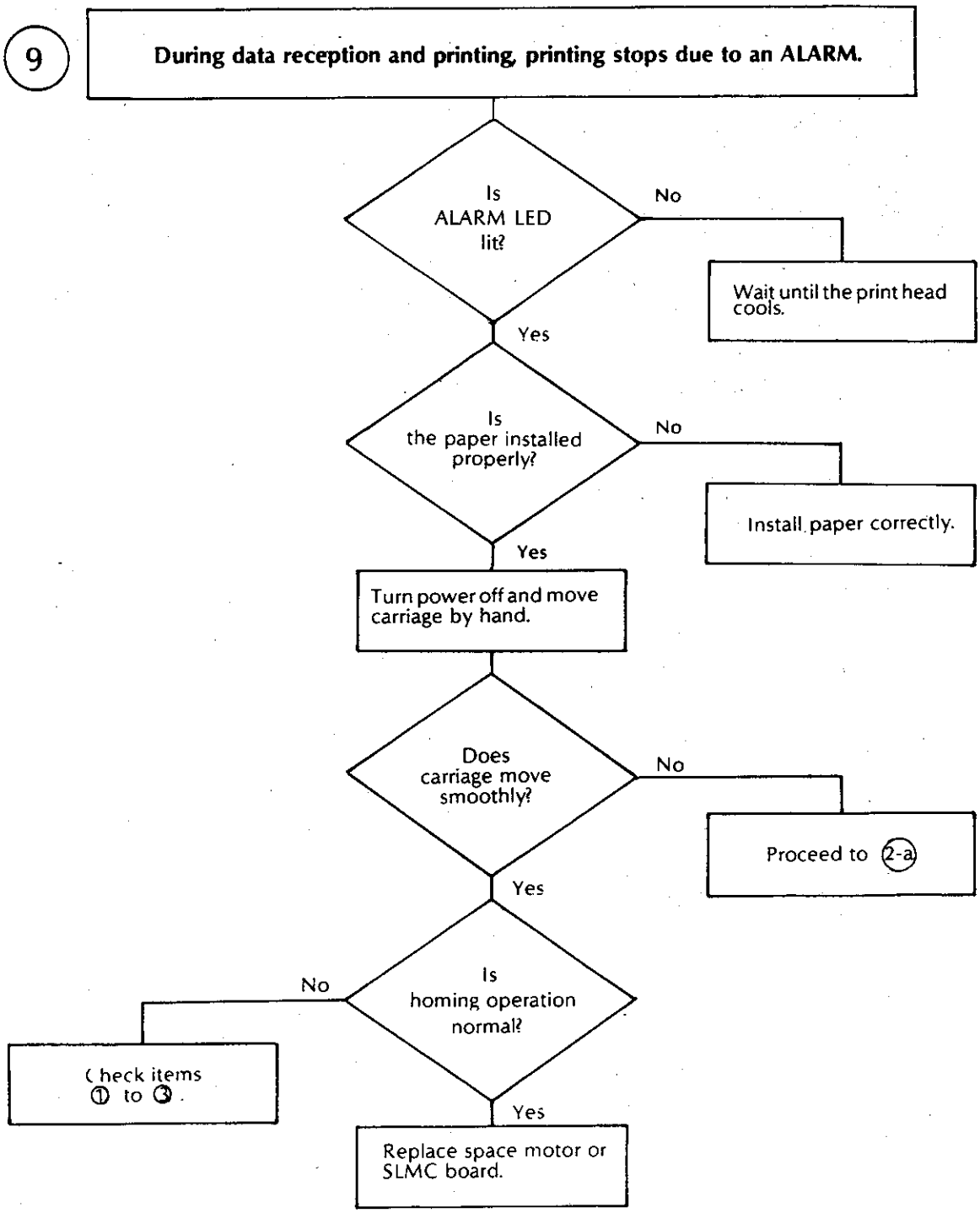


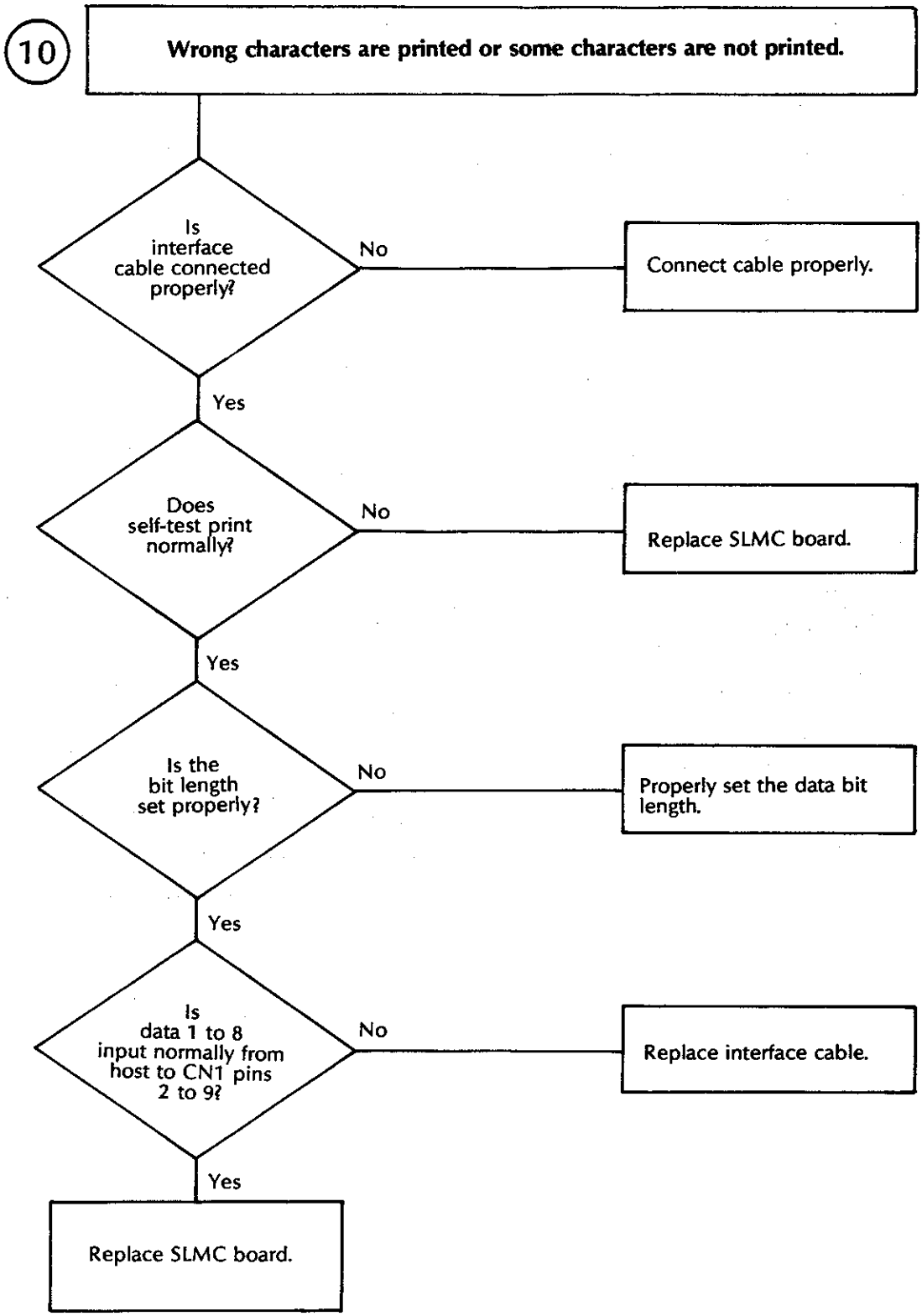

6
When power is turned on, fuse F1 on the control board (SLMC) blows.
Is the fuse properly rated? (1.5A)
No
Replace with properly rated fuse.
Yes
Replace the SLMC board.

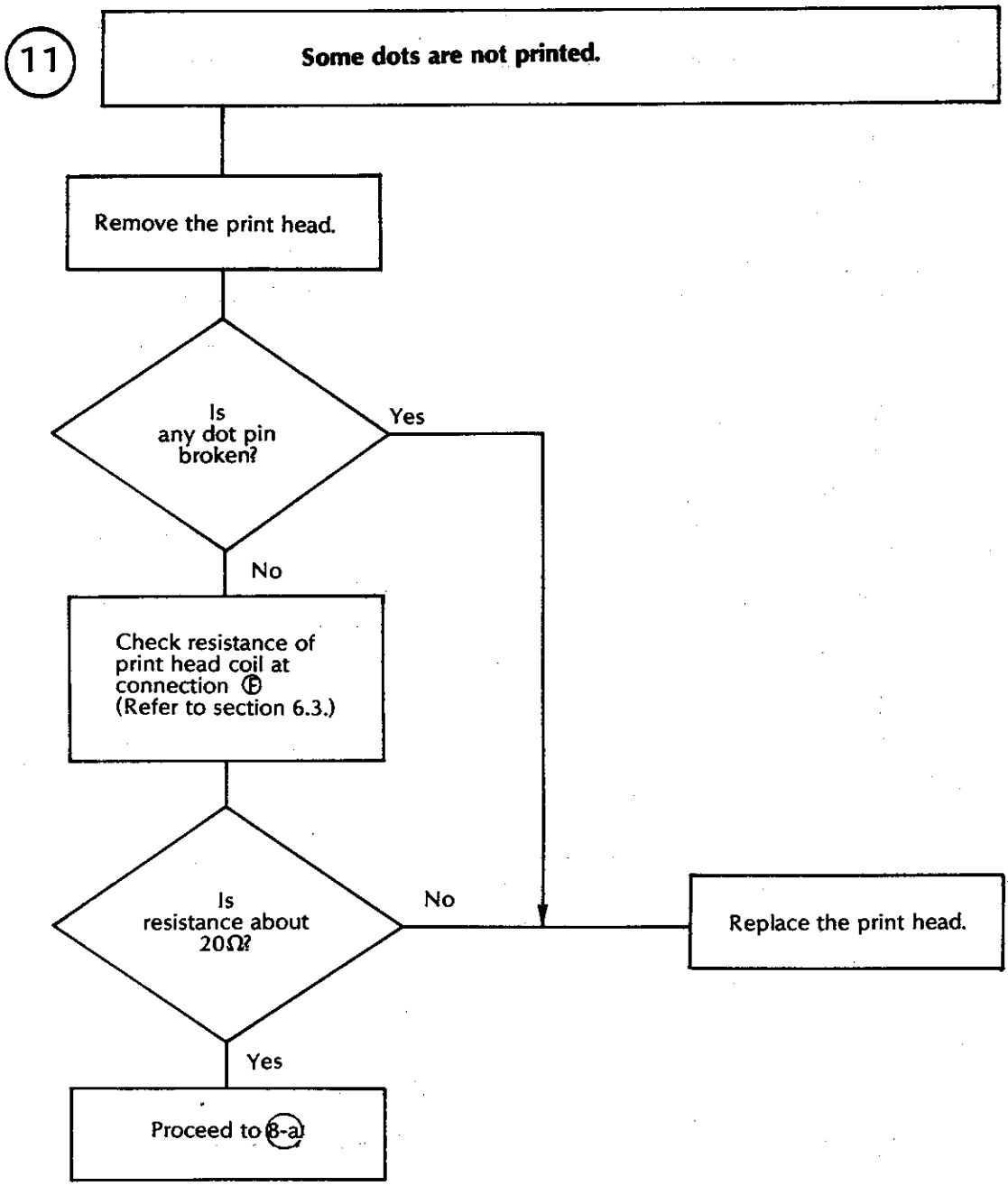

7
During data reception, neither spacing nor printing occurs.
Verify data is being transmitted to printer.
Is SELECT LED lit?
No
Proceed to (4-1).
Yes
With interface cable removed are signal levels at CN1 as shown in table below?
No
Signal Levels
Pin 10 H
Pin 11 L
Pin 12 L
Pin 13 H
Pin 32 H
Yes
With cable connected are parallel data (pins 2 to 9), STB (pin 1), on CN1 being received?
No
Is interface cable connected corrrectly?
No
Yes
Replace interface cable.
Yes
Can self test be performed?
Yes
No
Connect interface cable correctly.
Replace SLMC board.
Proceed to (15-a)

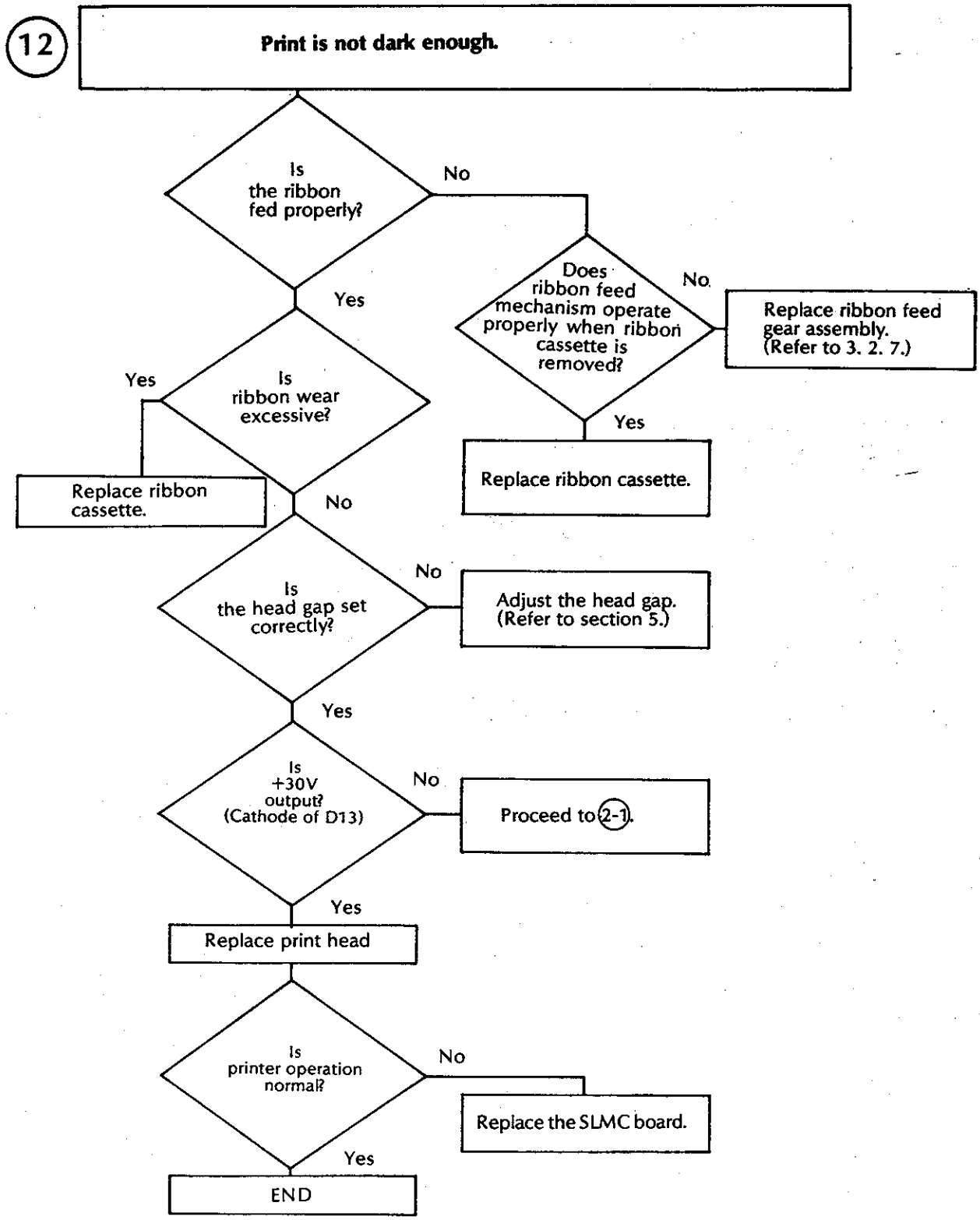

8
During data reception and printing, spacing is normal, but nothing is printed.
Does TR10 on SLMC board turn ON and OFF alternately?
No
Replace the SLMC board.
Yes
Replace the print head.
Is printer operation normal?
No
Yes
END
8-a
Turn off the power and remove the SLMC board. Check the resistance between pins 5, 6, 7, and 1, 2, 3, 4, 10, 11, 12, 13, 14 at CN3 (connection board side) of connection Ⓐ (Refer to figure 6-2). (Note.)
Are resistances about 20Ω?
No
Yes
Replace the SLMC board.
Is the cord clamp of connection Ⓒ firmly locked?
No
Yes
Is the ribbon feed assembly attached correctly?
No
Assemble completely.
Yes
Is connection board broken?
Yes
Replace the connection board. (Refer to 3. 2. 15.)
No
Is carriage cable broken?
Yes
Replace the carriage cable. (Refer to 3. 2. 10.)
No
Is the contact pin of print head connector deformed?
Yes
Replace the connector.
No
Verify that the contacts at connection Ⓒ, Ⓓ, Ⓔ, and Ⓕ are not damaged or worn.

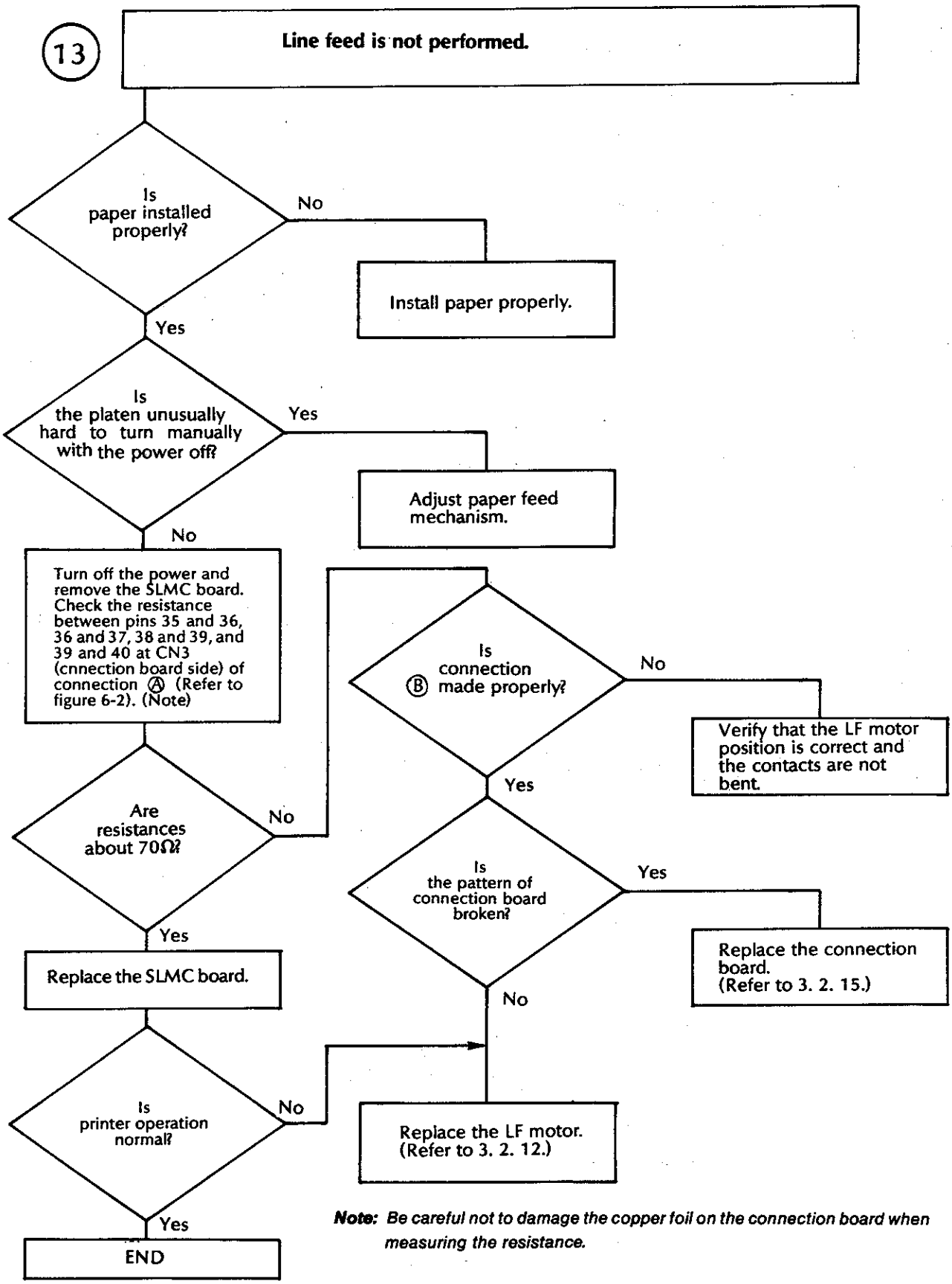
***Note:*** *Be careful not to damage the copper foil on the connection board when measuring the resistance.*


9
During data reception and printing, printing stops due to an ALARM.
Is ALARM LED lit?
No
Wait until the print head cools.
Yes
Is the paper installed properly?
No
Install paper correctly.
Yes
Turn power off and move carriage by hand.
Does carriage move smoothly?
No
Proceed to 2-a
Yes
Is homing operation normal?
No
Check items ① to ③.
Yes
Replace space motor or SLMC board.

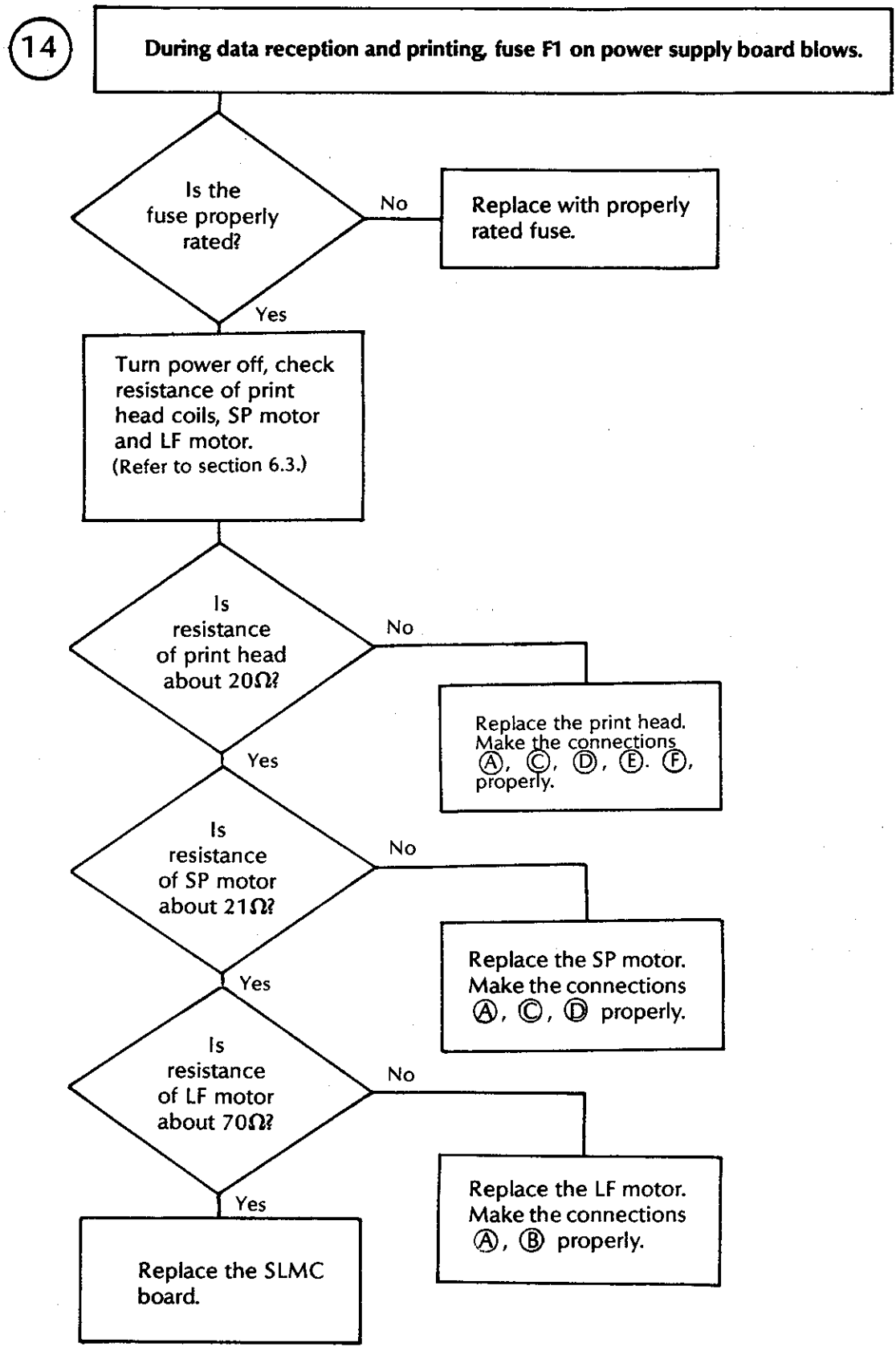

10
Wrong characters are printed or some characters are not printed.
Is interface cable connected properly?
No
Connect cable properly.
Yes
Does self-test print normally?
No
Replace SLMC board.
Yes
Is the bit length set properly?
No
Properly set the data bit length.
Yes
Is data 1 to 8 input normally from host to CN1 pins 2 to 9?
No
Replace interface cable.
Yes
Replace SLMC board.

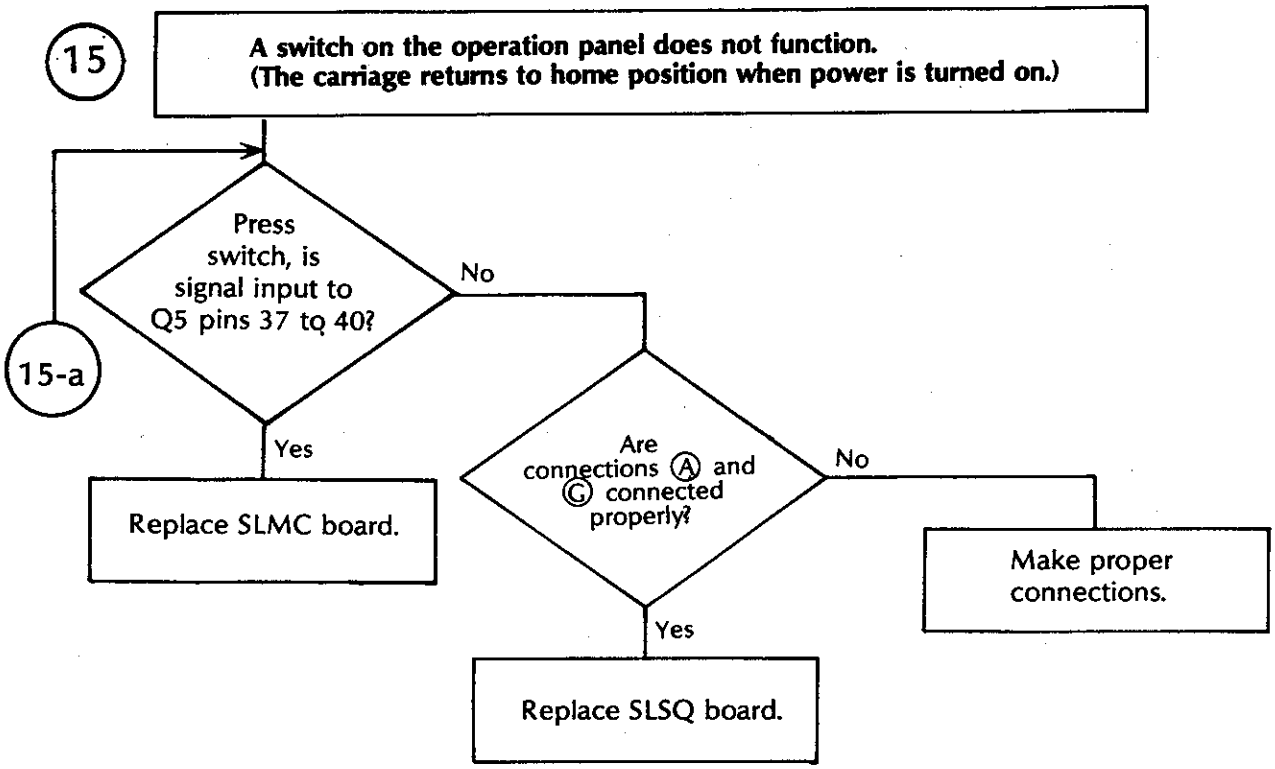

11
Some dots are not printed.
Remove the print head.
Is any dot pin broken?
Yes
No
Check resistance of print head coil at connection (P) (Refer to section 6.3.)
Is resistance about 20Ω?
No
Replace the print head.
Yes
Proceed to 8-a


12
Print is not dark enough.
Is the ribbon fed properly?
No
Does ribbon feed mechanism operate properly when ribbon cassette is removed?
No
Replace ribbon feed gear assembly. (Refer to 3. 2. 7.)
Yes
Replace ribbon cassette.
Yes
Is ribbon wear excessive?
Yes
Replace ribbon cassette.
No
Is the head gap set correctly?
No
Adjust the head gap. (Refer to section 5.)
Yes
Is +30V output? (Cathode of D13)
No
Proceed to 2-1.
Yes
Replace print head
Is printer operation normal?
No
Replace the SLMC board.
Yes
END


13
Line feed is not performed.
Is paper installed properly?
No
Install paper properly.
Yes
Is the platen unusually hard to turn manually with the power off?
Yes
Adjust paper feed mechanism.
No
Turn off the power and remove the SLMC board. Check the resistance between pins 35 and 36, 36 and 37, 38 and 39, and 39 and 40 at CN3 (cnnection board side) of connection Ⓐ (Refer to figure 6-2). (Note)
Are resistances about 70Ω?
No
Yes
Replace the SLMC board.
Is printer operation normal?
No
Yes
END
Is connection Ⓑ made properly?
No
Verify that the LF motor position is correct and the contacts are not bent.
Yes
Is the pattern of connection board broken?
Yes
Replace the connection board. (Refer to 3. 2. 15.)
No
Replace the LF motor. (Refer to 3. 2. 12.)

***Note:*** *Be careful not to damage the copper foil on the connection board when measuring the resistance.*


14
During data reception and printing, fuse F1 on power supply board blows.
Is the fuse properly rated?
No
Replace with properly rated fuse.
Yes
Turn power off, check resistance of print head coils, SP motor and LF motor. (Refer to section 6.3.)
Is resistance of print head about 20Ω?
No
Replace the print head. Make the connections Ⓐ, Ⓒ, Ⓓ, Ⓔ. Ⓕ, properly.
Yes
Is resistance of SP motor about 21Ω?
No
Replace the SP motor. Make the connections Ⓐ, Ⓒ, Ⓓ properly.
Yes
Is resistance of LF motor about 70Ω?
No
Replace the LF motor. Make the connections Ⓐ, Ⓑ properly.
Yes
Replace the SLMC board.


15
A switch on the operation panel does not function.
(The carriage returns to home position when power is turned on.)
Press switch, is signal input to Q5 pins 37 to 40?
No
Yes
15-a
Replace SLMC board.
Are connections Ⓐ and Ⓒ connected properly?
No
Make proper connections.
Yes
Replace SLSQ board.

# 7. CIRCUIT DIAGRAM

# 7. CIRCUIT DIAGAM

Table 7-1 shows the meanings of symbols used in the circuit diagrams and figure 7-1 shows the circuit diagrams.

**Table 7-1 Table of Symbols**

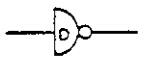
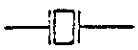
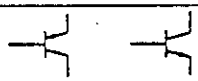
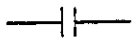
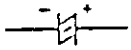
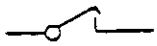
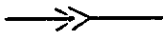
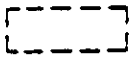
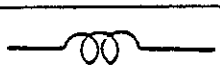
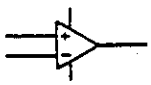
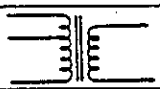
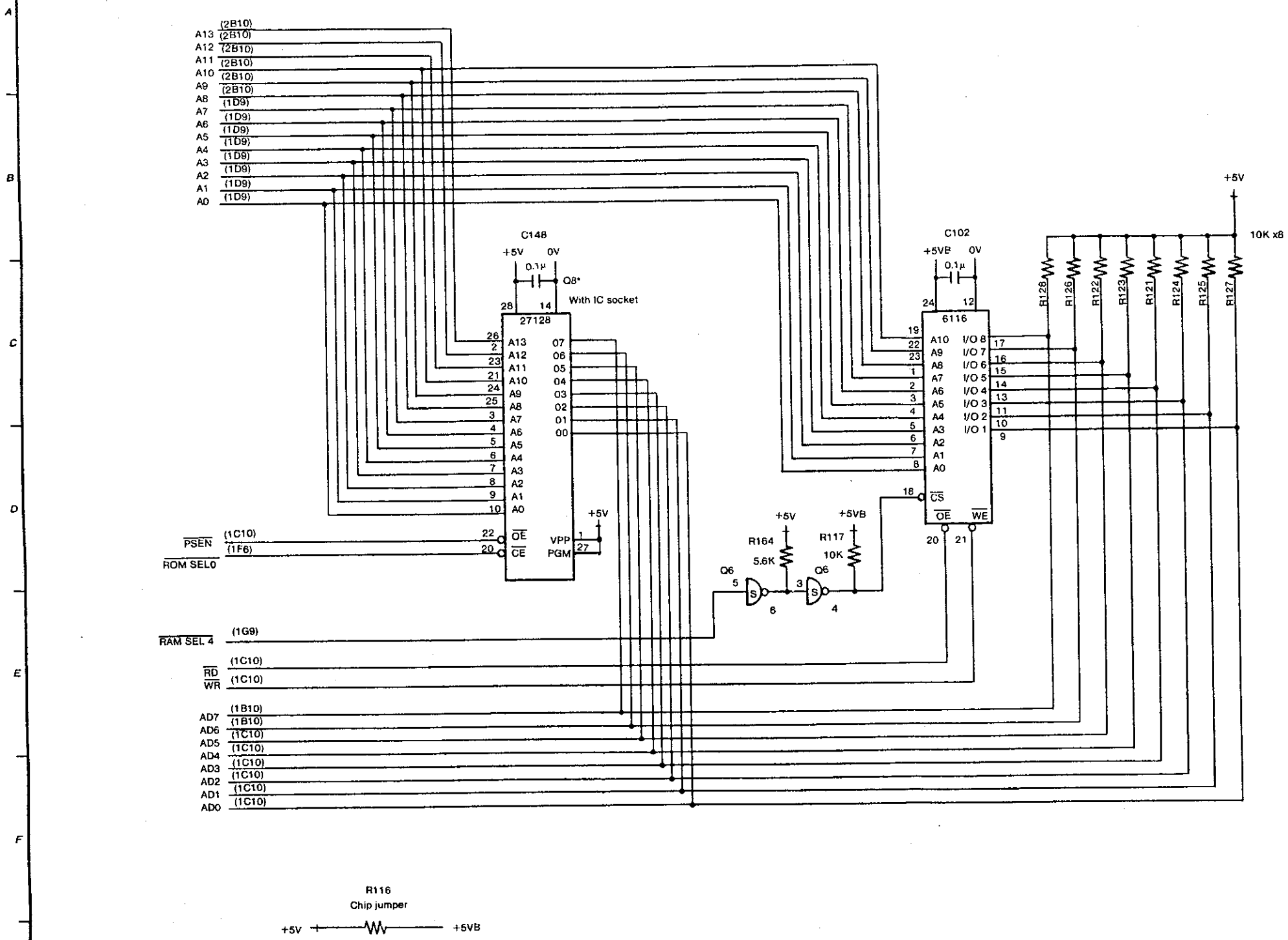
| Symbol | Mark | Description |
|---|---|---|
|  | Q | Inverter (open collector) |
|  | OSC | Ceramic oscillator |
|  | TR | Transistor |
| | SCR | Thyristor |
| | D | Diode |
| | D | Zener diode |
| | D | Light-emitting diode |
| | REG | Regulator |
|  | C | Capacitor |
|  | C | Electrolytic capacitor |
| | R | Resistor |

**Table 7-1 (con.)**

| Symbol | Mark | Description |
|---|---|---|
|  | SW | Switch |
|  | CN | Connector (terminal) |
| (Reference)  | | Means a single part. |
| | FG | Frame ground |
| | | Dot head (element) |
|  | L | Coil |
|  | Q | 339<br>Comparator |
| | THERMISTOR | Thermistor |
| | SG | Signal ground |
|  | TF | Transformer |
| | | Photo sensor |
| | F | Fuse |

| Part Name | Circuit Board Revision | Revision |
|---|---|---|
| SLMC-2 Circuit Board | 4 | 4 |
| SLSQ Circuit Board | 3 | 3 |
| SLPB Circuit Board | 3 | 3 |

**Figure 7-1 Circuit Diagram (1/4) (Rev.4)**




* Q8 (ROM) is used when 27128 is mounted.

**Figure 7-1 Circuit Diagram (2/4) (Rev.4)**

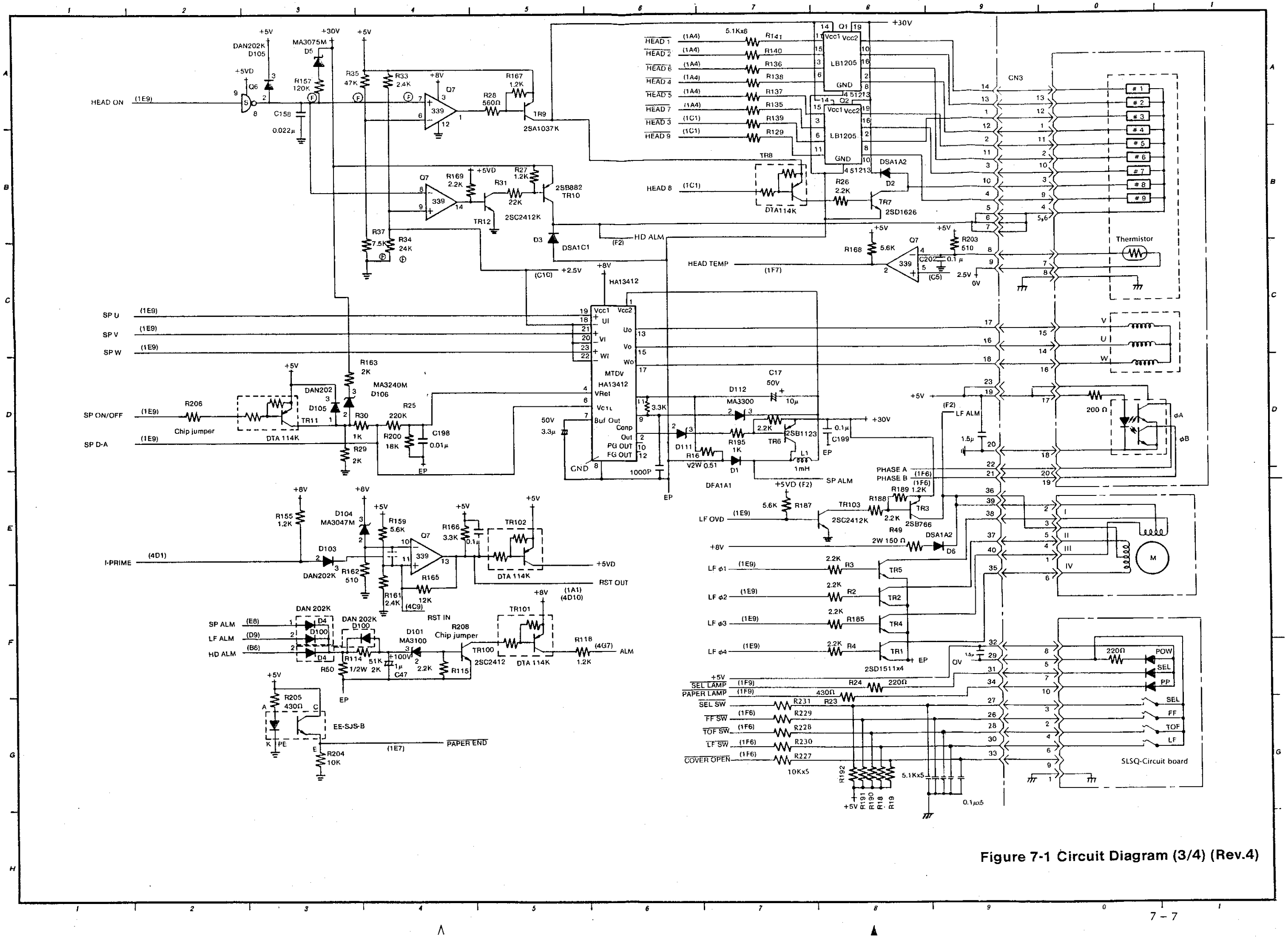
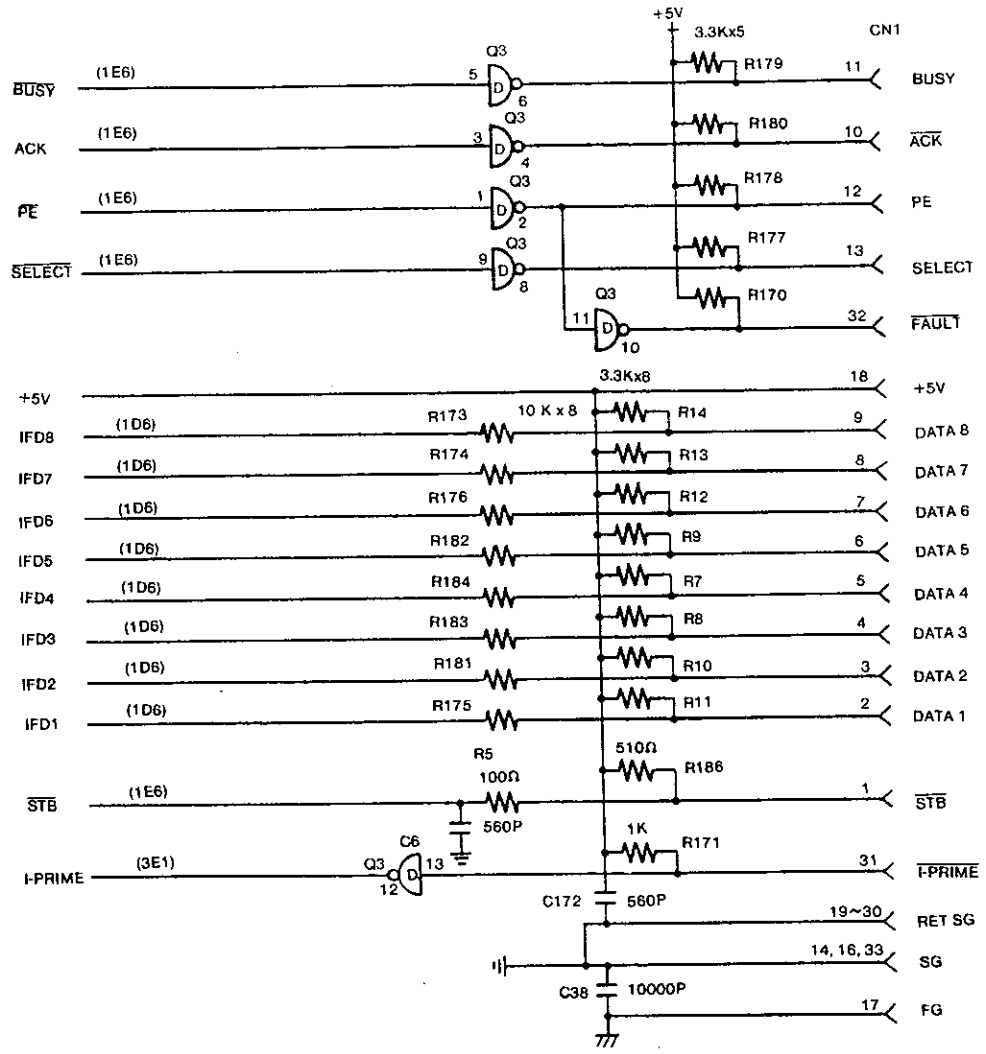
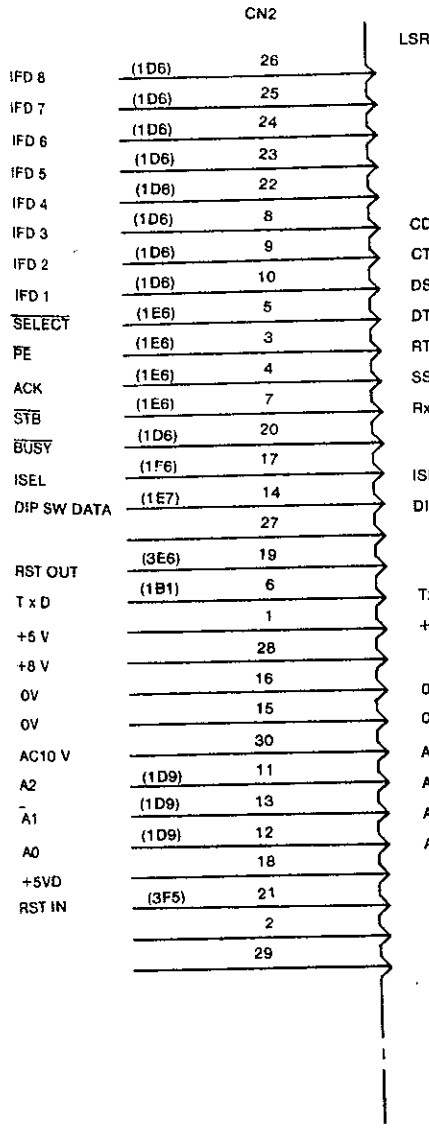
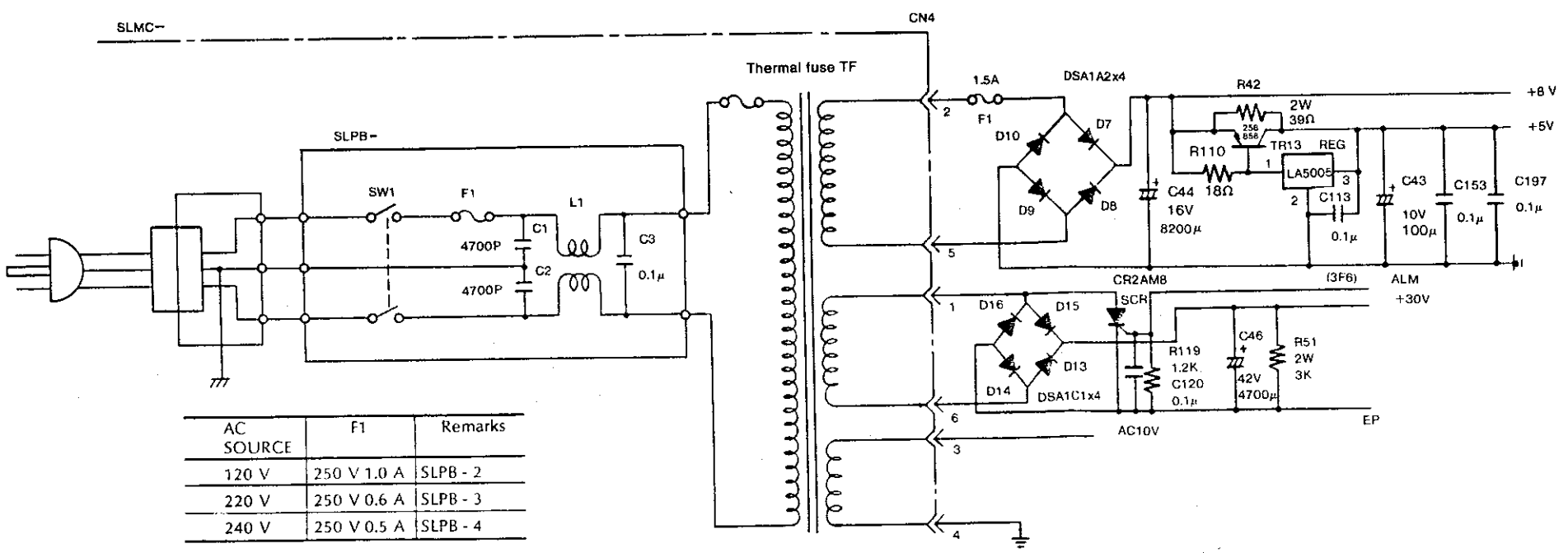



**Figure 7-1 Circuit Diagram (3/4) (Rev.4)**

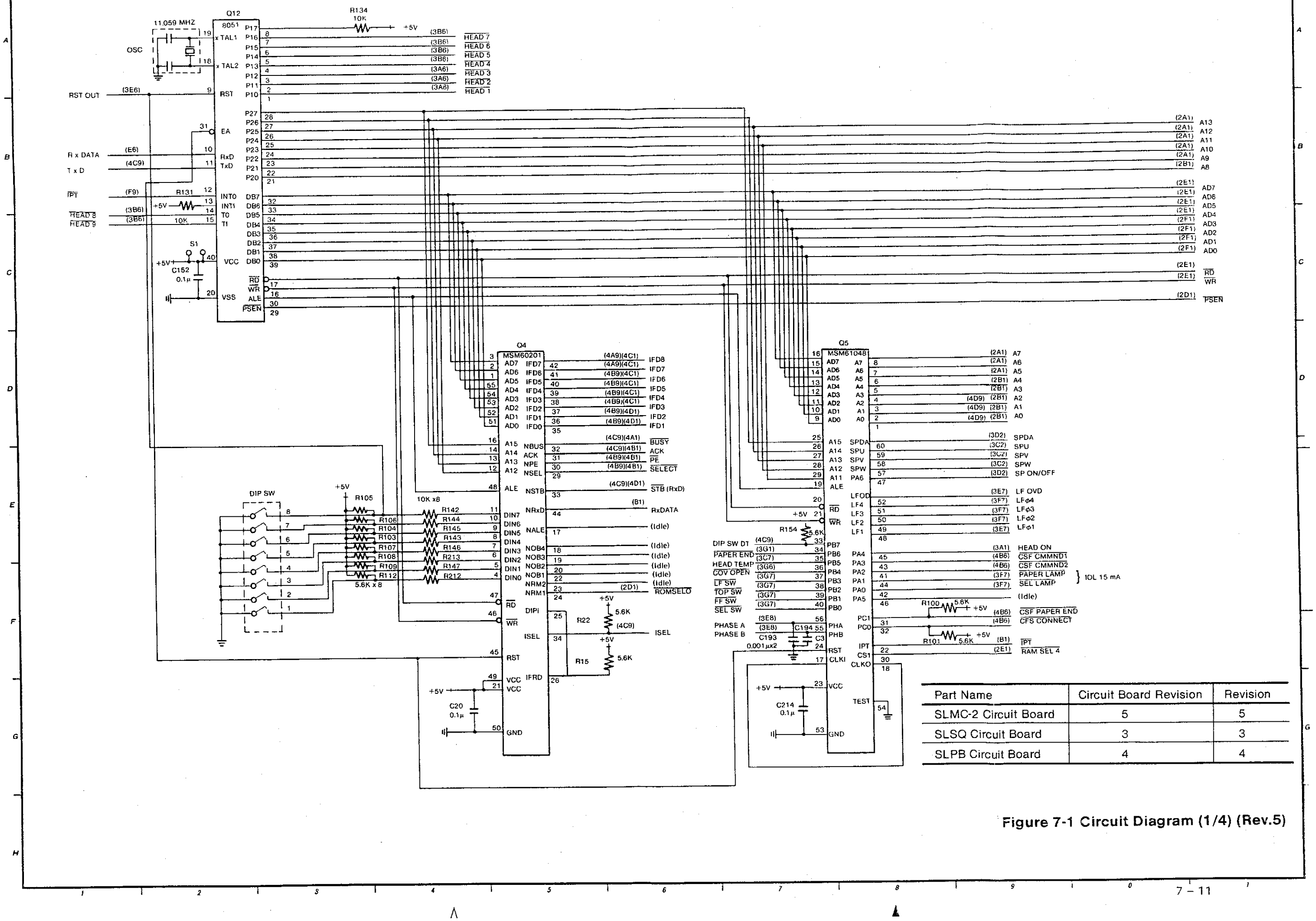


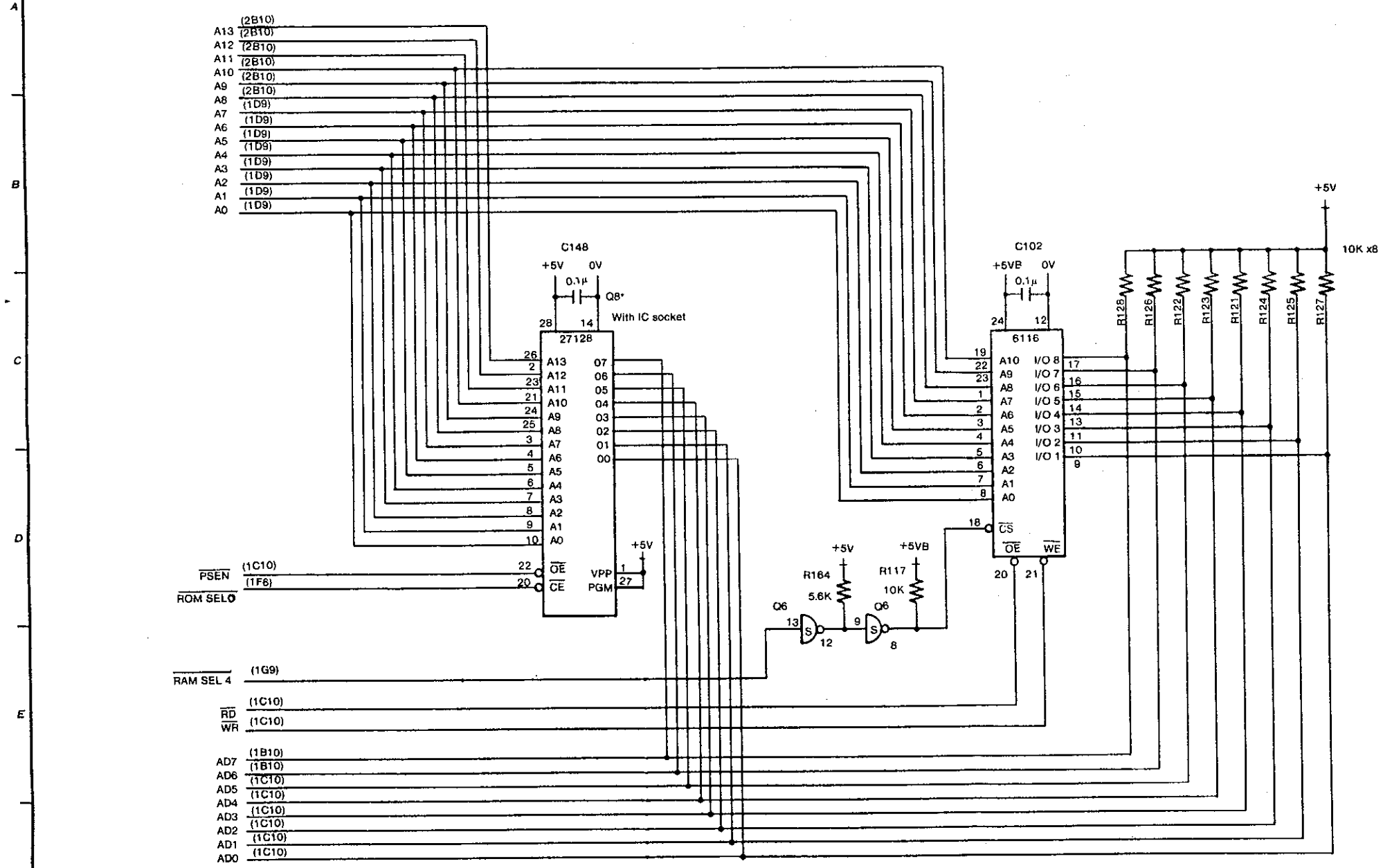

| AC SOURCE | F1 | Remarks |
|---|---|---|
| 120 V | 250 V 1.0 A | SLPB - 2 |
| 220 V | 250 V 0.6 A | SLPB - 3 |
| 240 V | 250 V 0.5 A | SLPB - 4 |

**Figure 7-1 Circuit Diagram (4/4) (Rev.4)**




| Part Name | Circuit Board Revision | Revision |
|---|---|---|
| SLMC-2 Circuit Board | 5 | 5 |
| SLSQ Circuit Board | 3 | 3 |
| SLPB Circuit Board | 4 | 4 |

**Figure 7-1 Circuit Diagram (1/4) (Rev.5)**




* Q8 (ROM) is used when 27128 is mounted.

**Figure 7-1 Circuit Diagram (2/4) (Rev.5)**

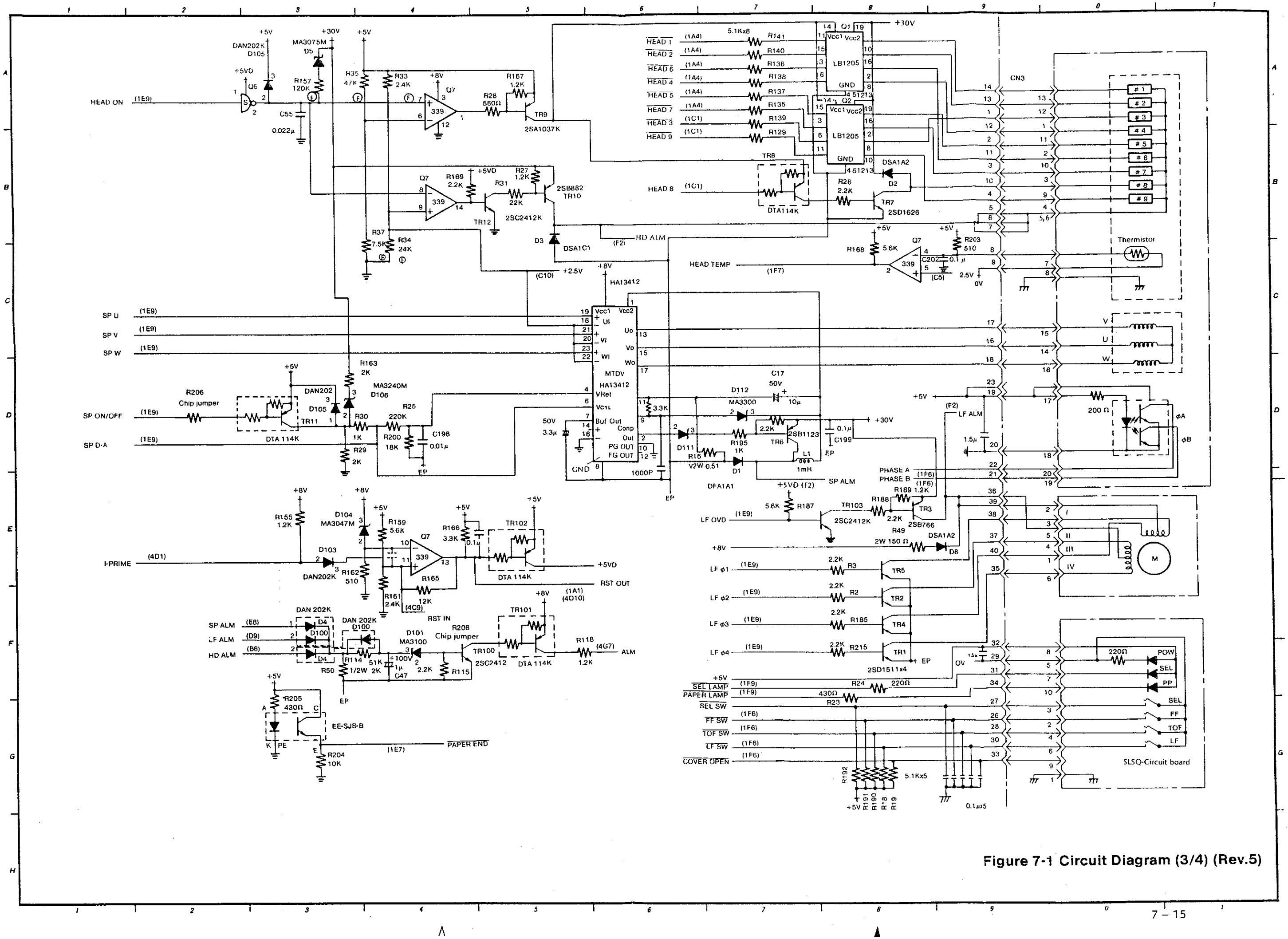
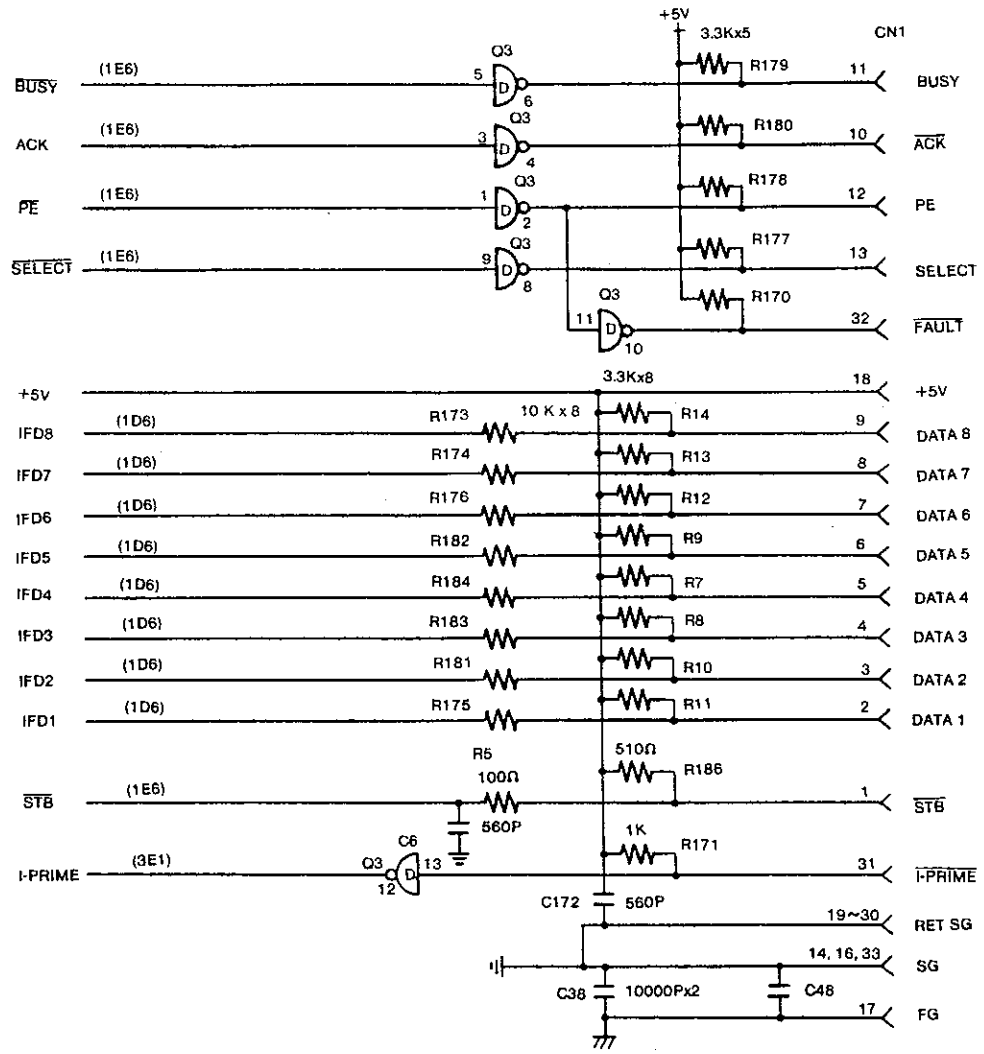
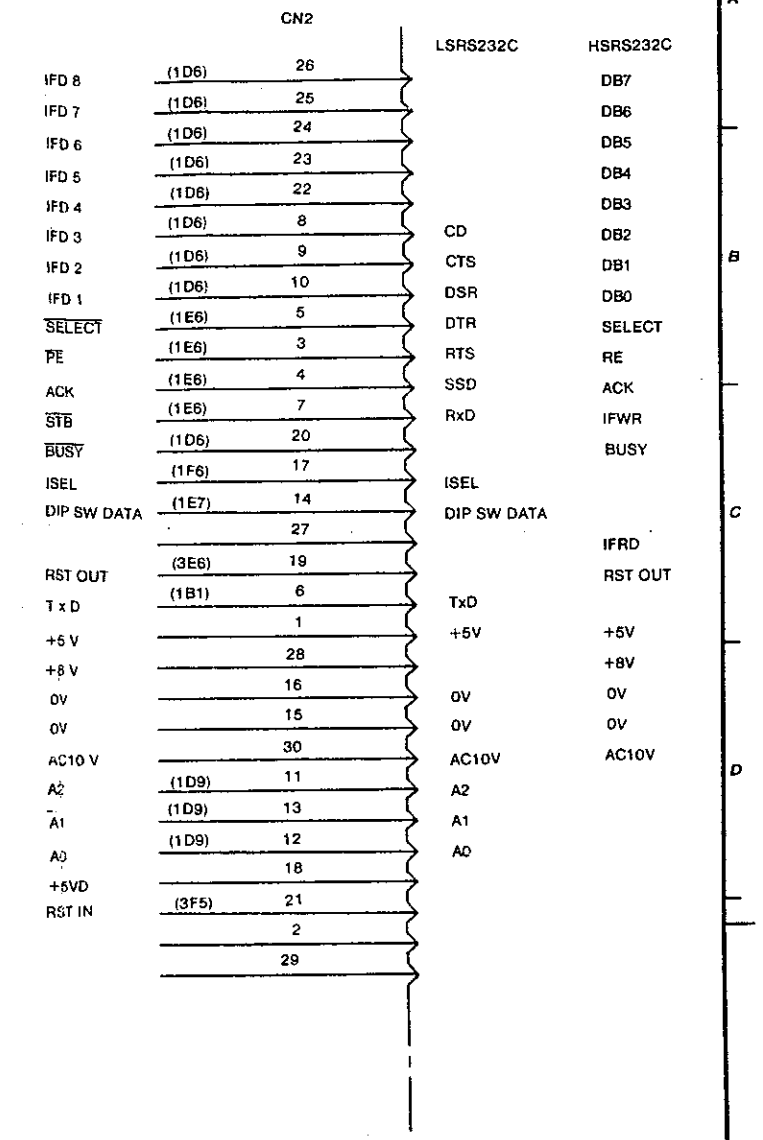
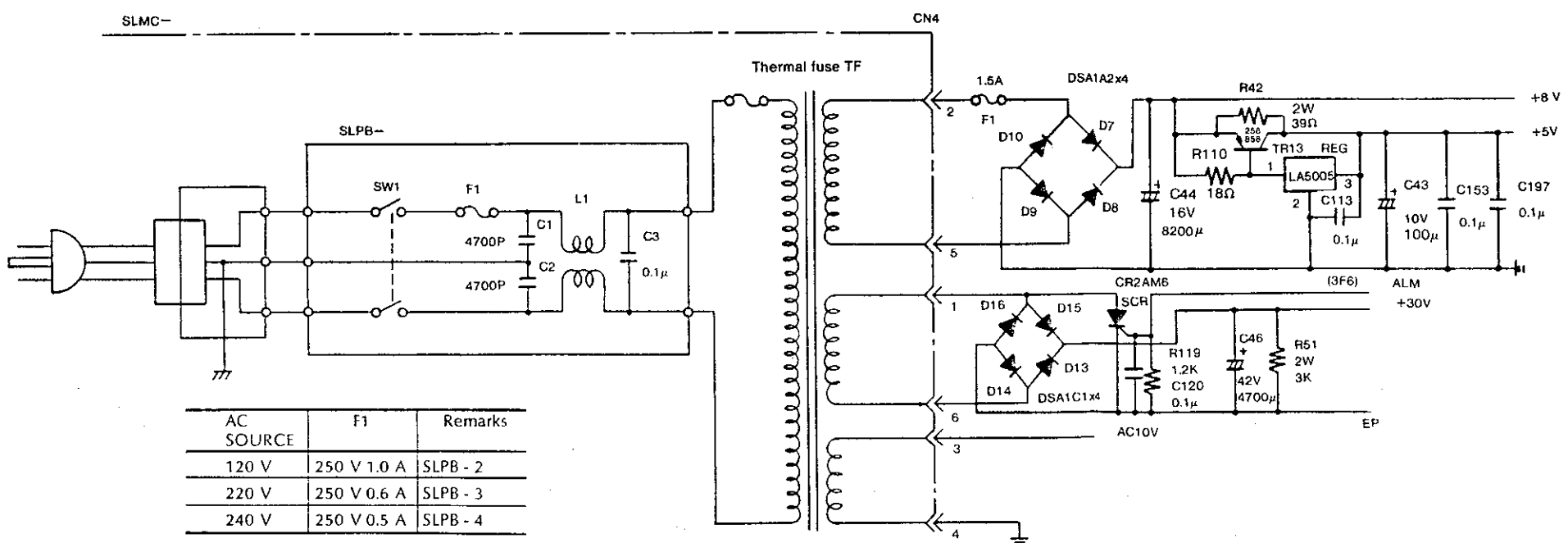



**Figure 7-1 Circuit Diagram (3/4) (Rev.5)**



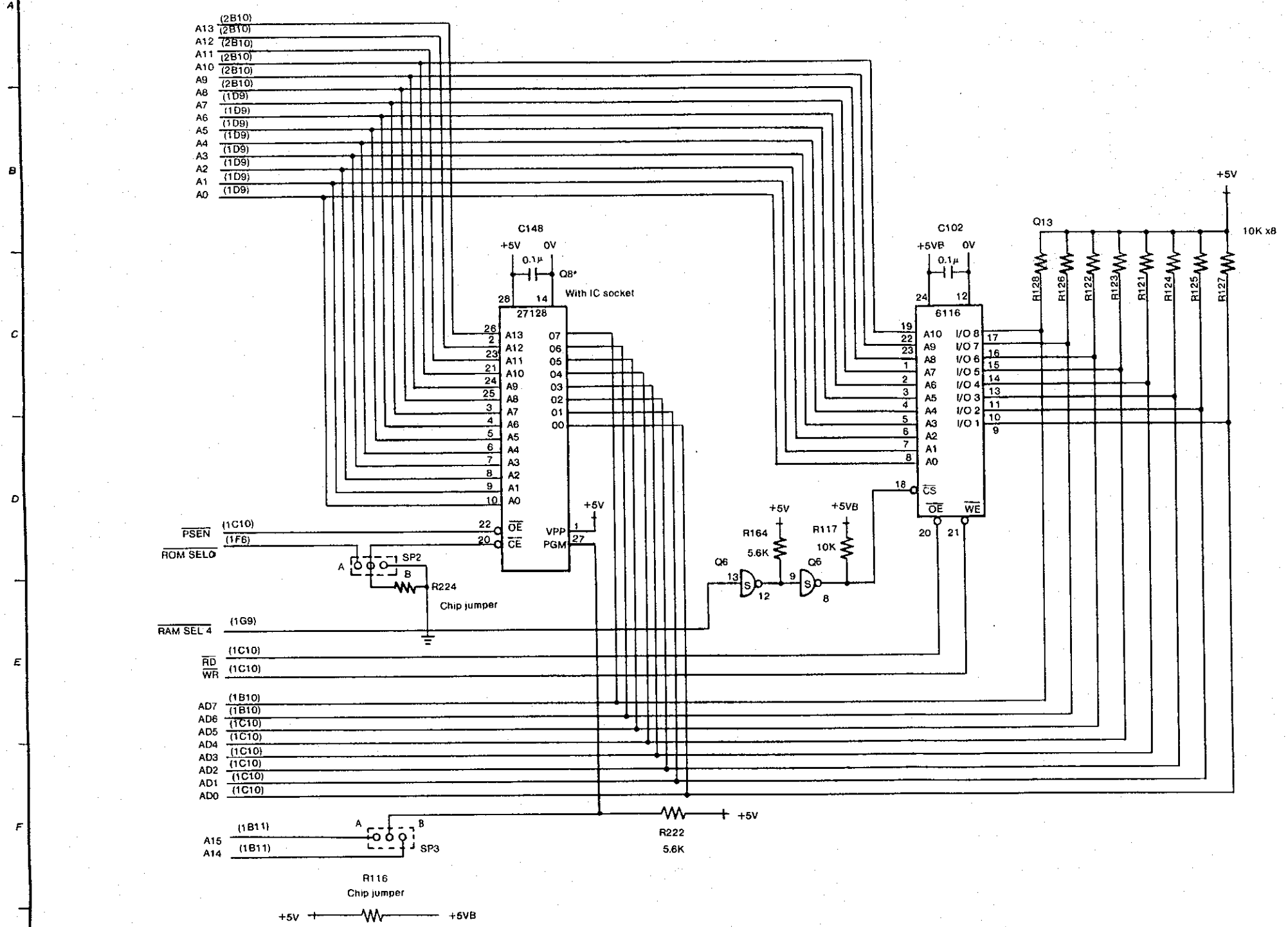




| AC SOURCE | F1 | Remarks |
|---|---|---|
| 120 V | 250 V 1.0 A | SLPB - 2 |
| 220 V | 250 V 0.6 A | SLPB - 3 |
| 240 V | 250 V 0.5 A | SLPB - 4 |

**Figure 7-1 Circuit Diagram (4/4) (Rev.5)**

| Part Name | Circuit Board Revision | Revision |
|---|---|---|
| SLMC-2 Circuit Board | 6 | 6 |
| SLSQ Circuit Board | 3 | 3 |
| SLPB Circuit Board | 4 | 4 |

**Figure 7-1 Circuit Diagram (1/4) (Rev.6)**




* Q8 (ROM) is used when 27128 is mounted.

**Figure 7-1 Circuit Diagram (2/4) (Rev.6)**

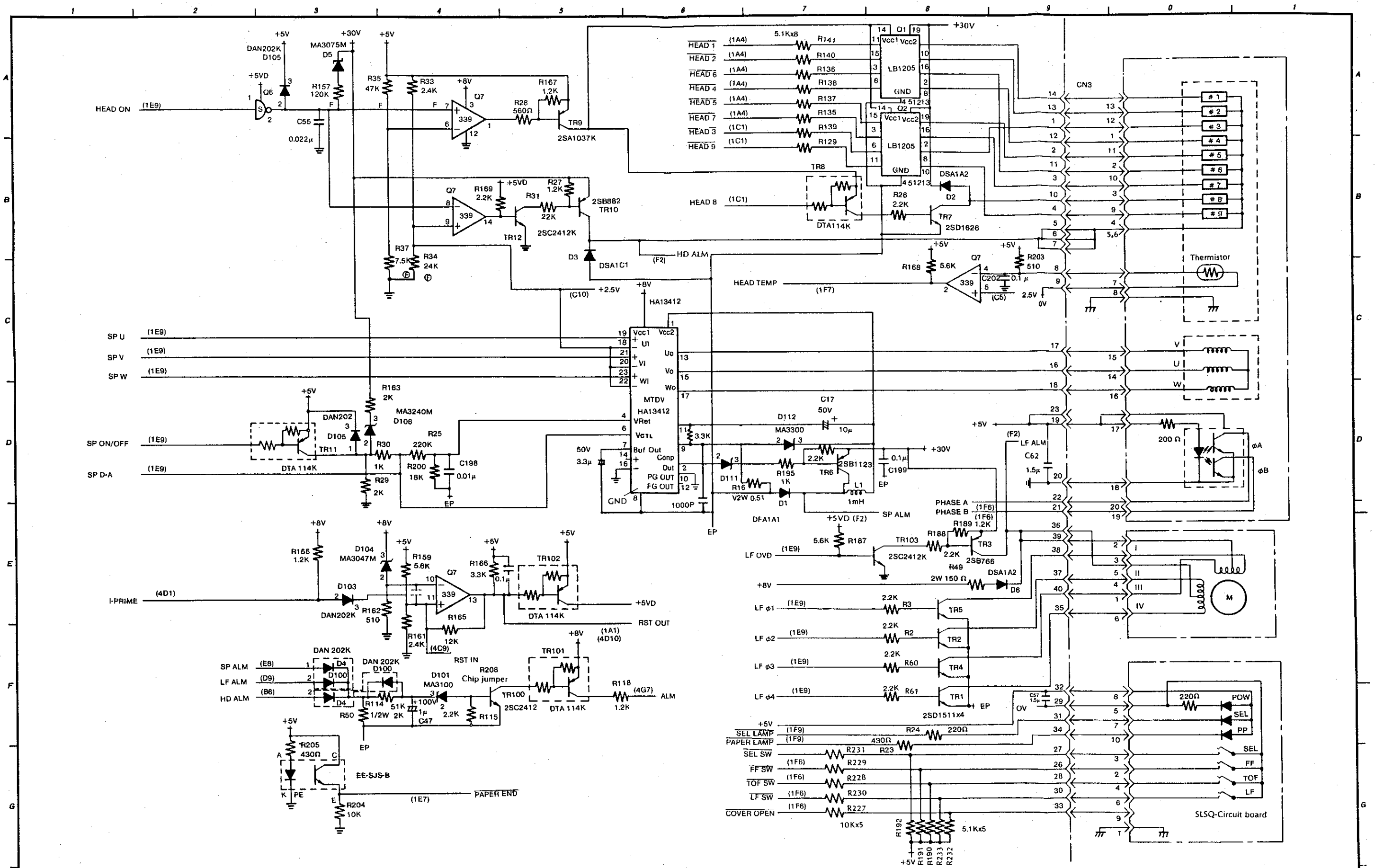
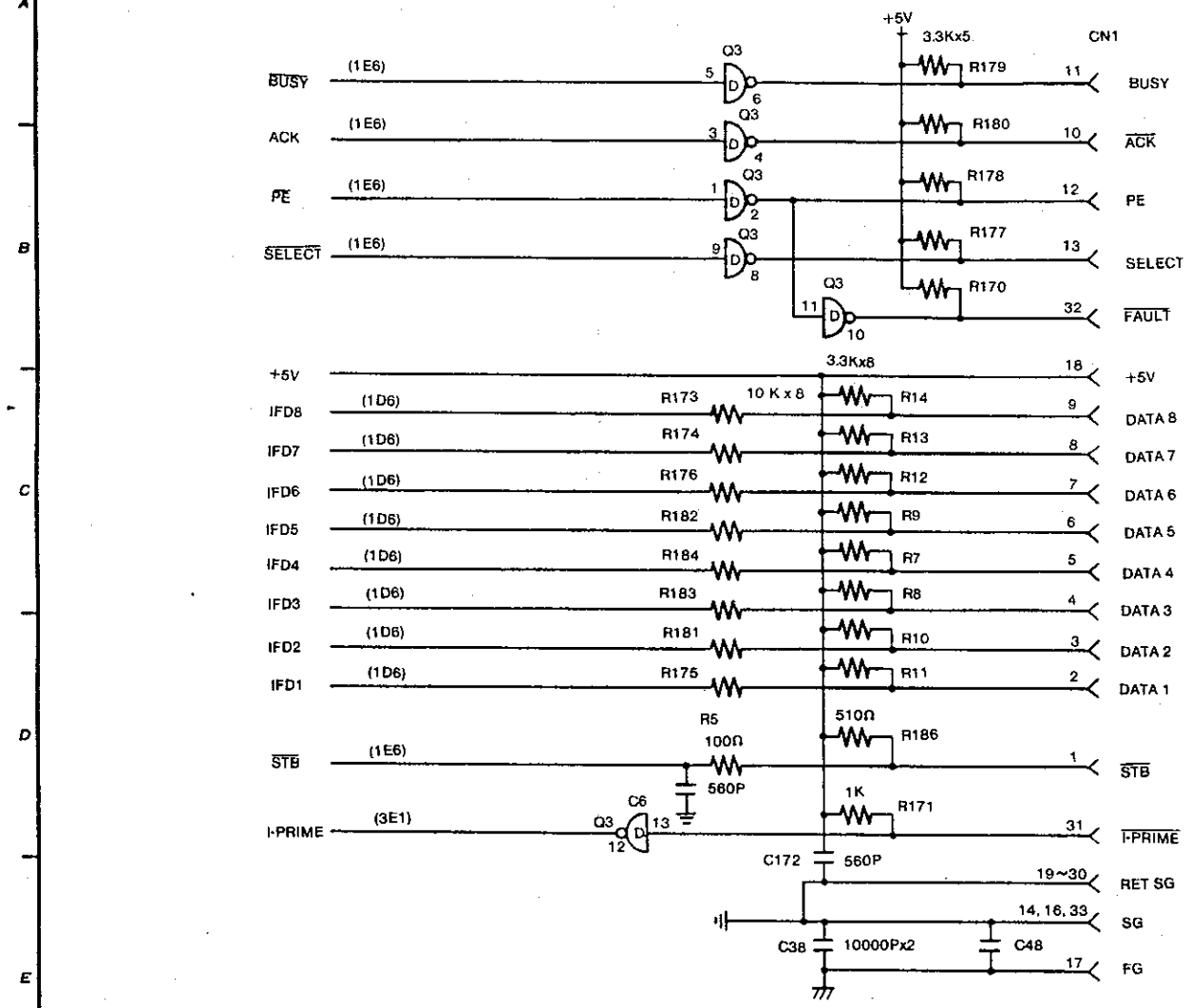
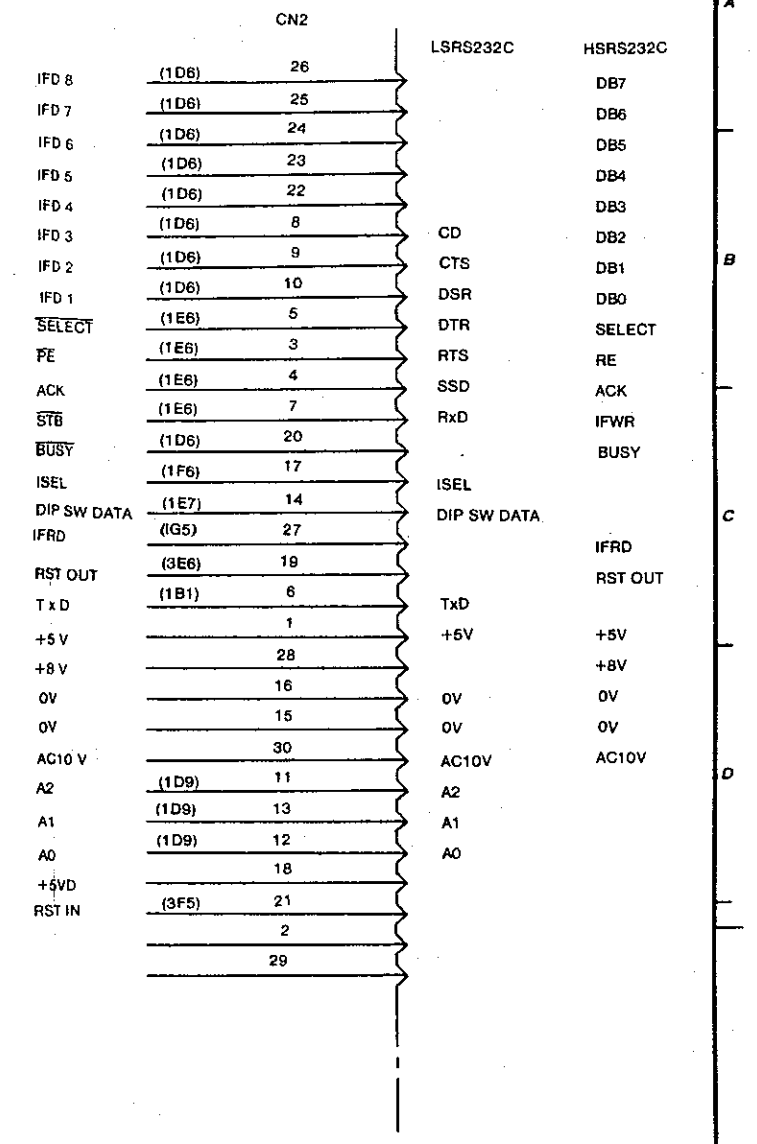
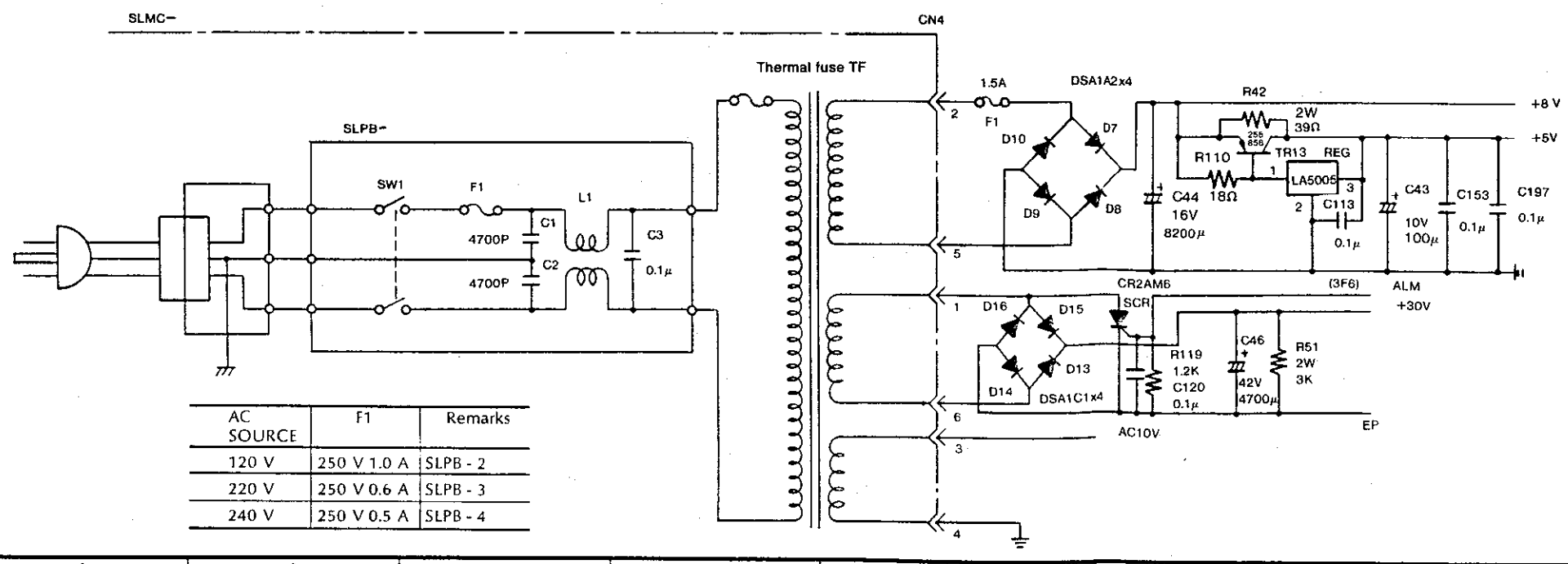



**Figure 7-1 Circuit Diagram (3/4) (Rev.6)**

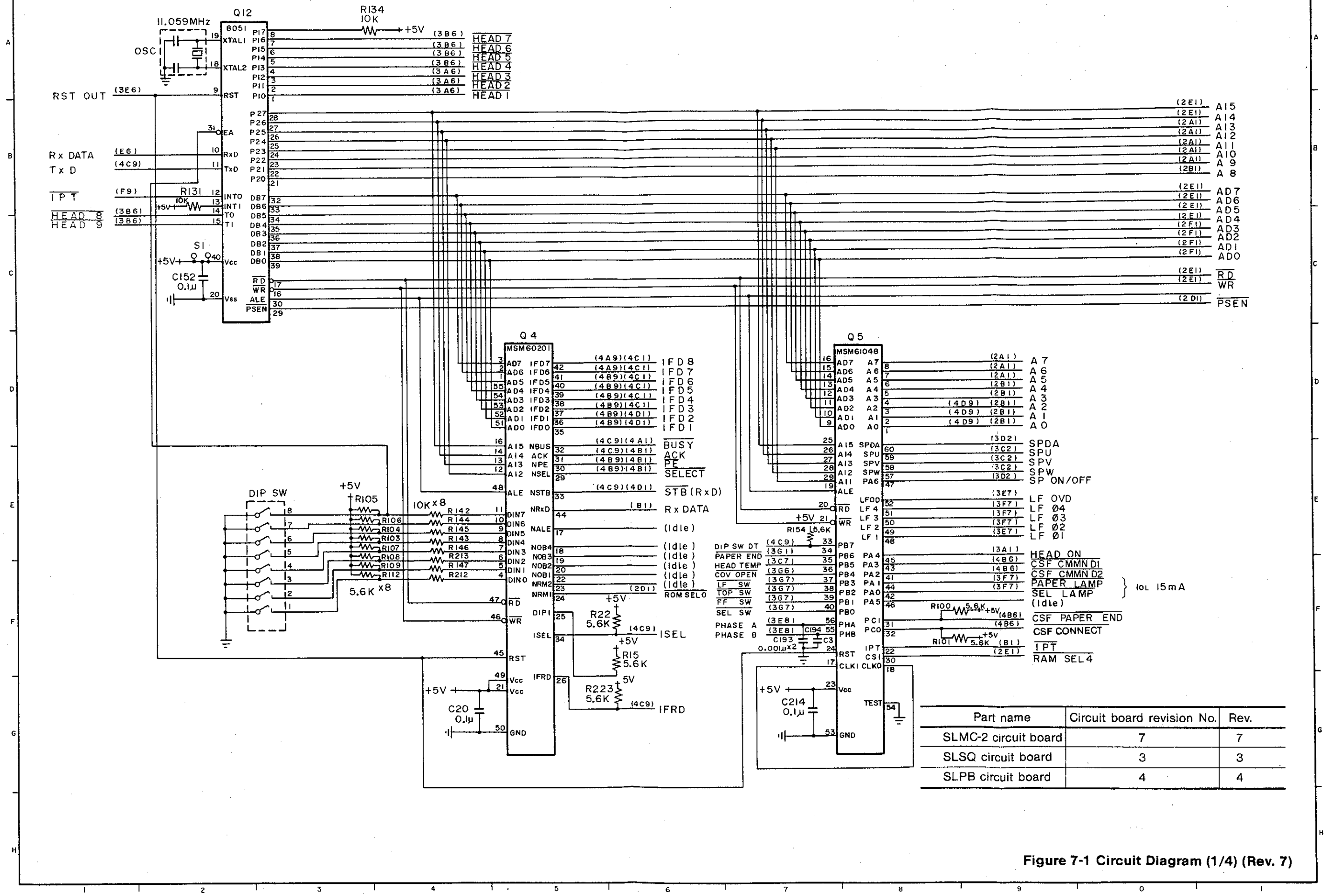


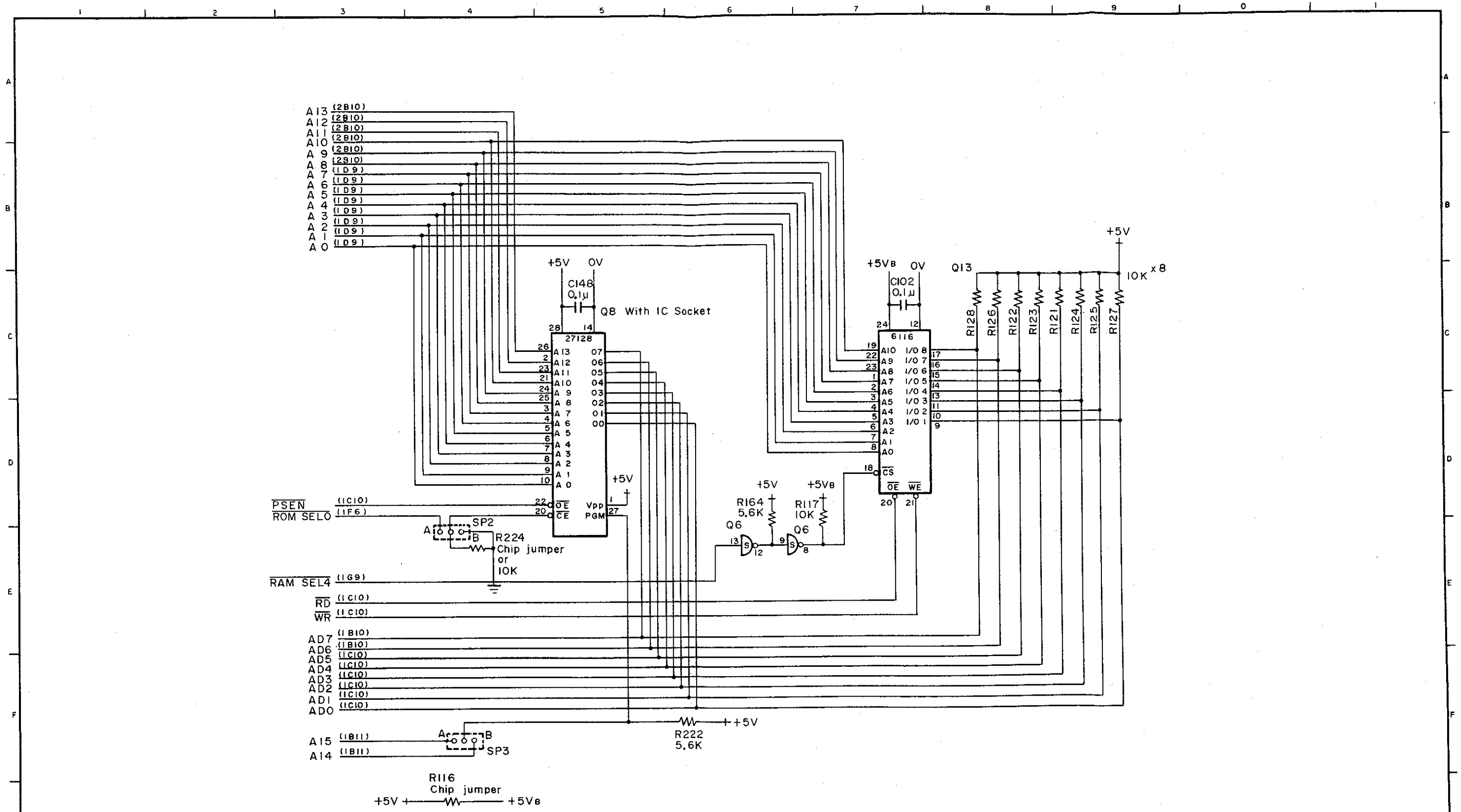

| AC SOURCE | F1 | Remarks |
|---|---|---|
| 120 V | 250 V 1.0 A | SLPB - 2 |
| 220 V | 250 V 0.6 A | SLPB - 3 |
| 240 V | 250 V 0.5 A | SLPB - 4 |

**Figure 7-1 Circuit Diagram (4/4) (Rev.6)**




| Part name | Circuit board revision No. | Rev. |
|---|---|---|
| SLMC-2 circuit board | 7 | 7 |
| SLSQ circuit board | 3 | 3 |
| SLPB circuit board | 4 | 4 |

**Figure 7-1 Circuit Diagram (1/4) (Rev. 7)**




Q8 (ROM) shows when 27128 is installed.

**Figure 7-1 Circuit Diagram (2/4) (Rev. 7)**

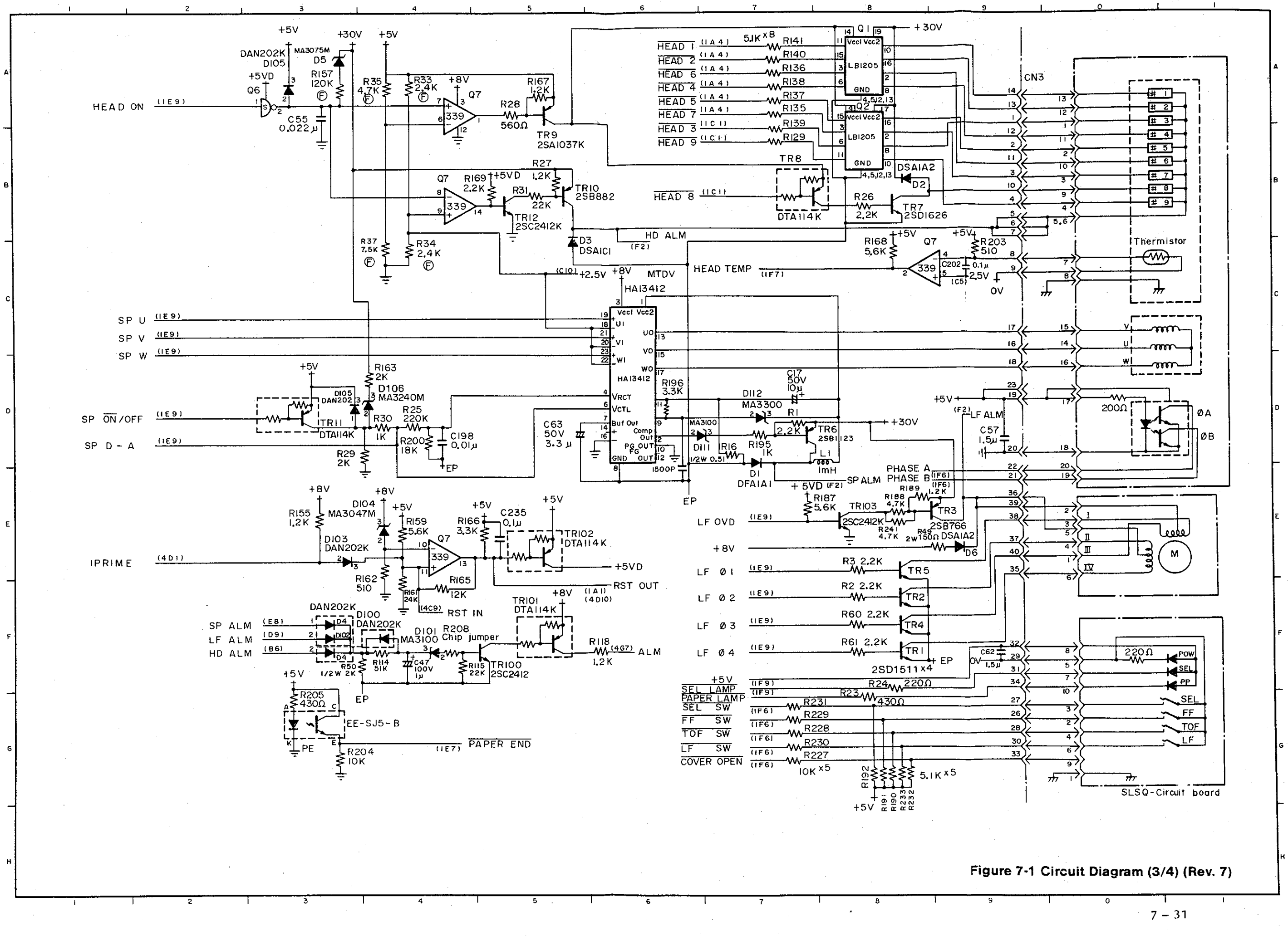
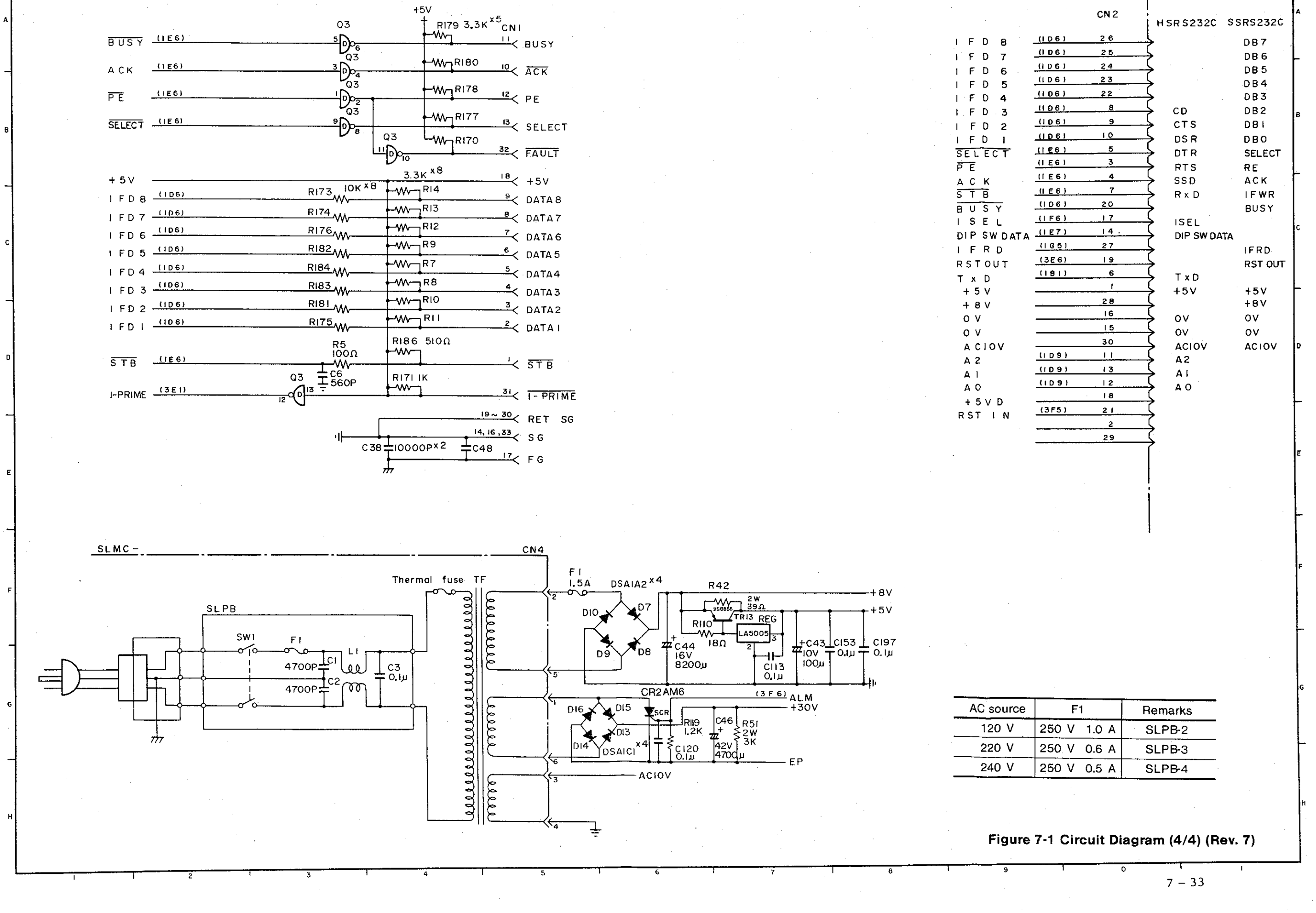
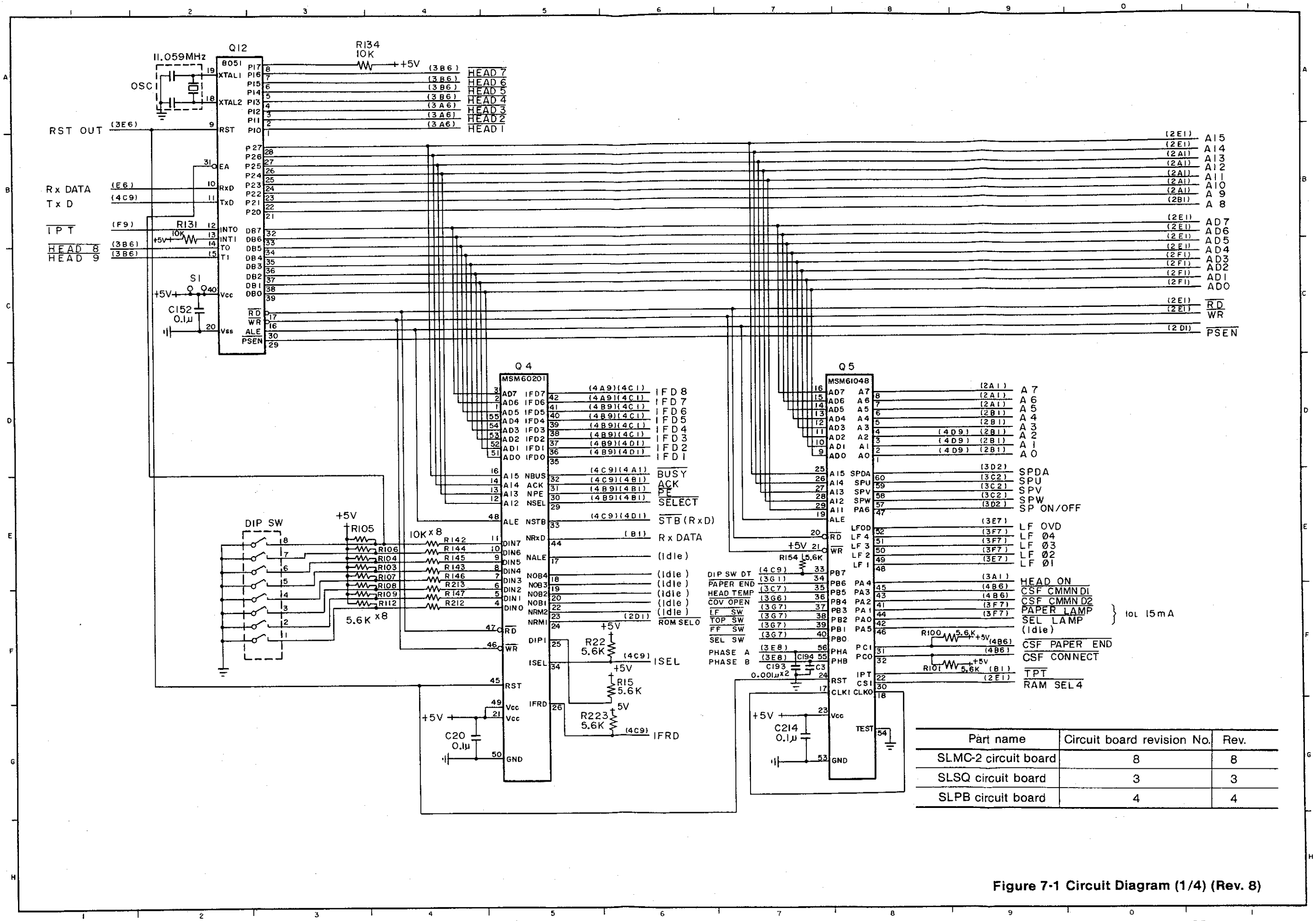



**Figure 7-1 Circuit Diagram (3/4) (Rev. 7)**



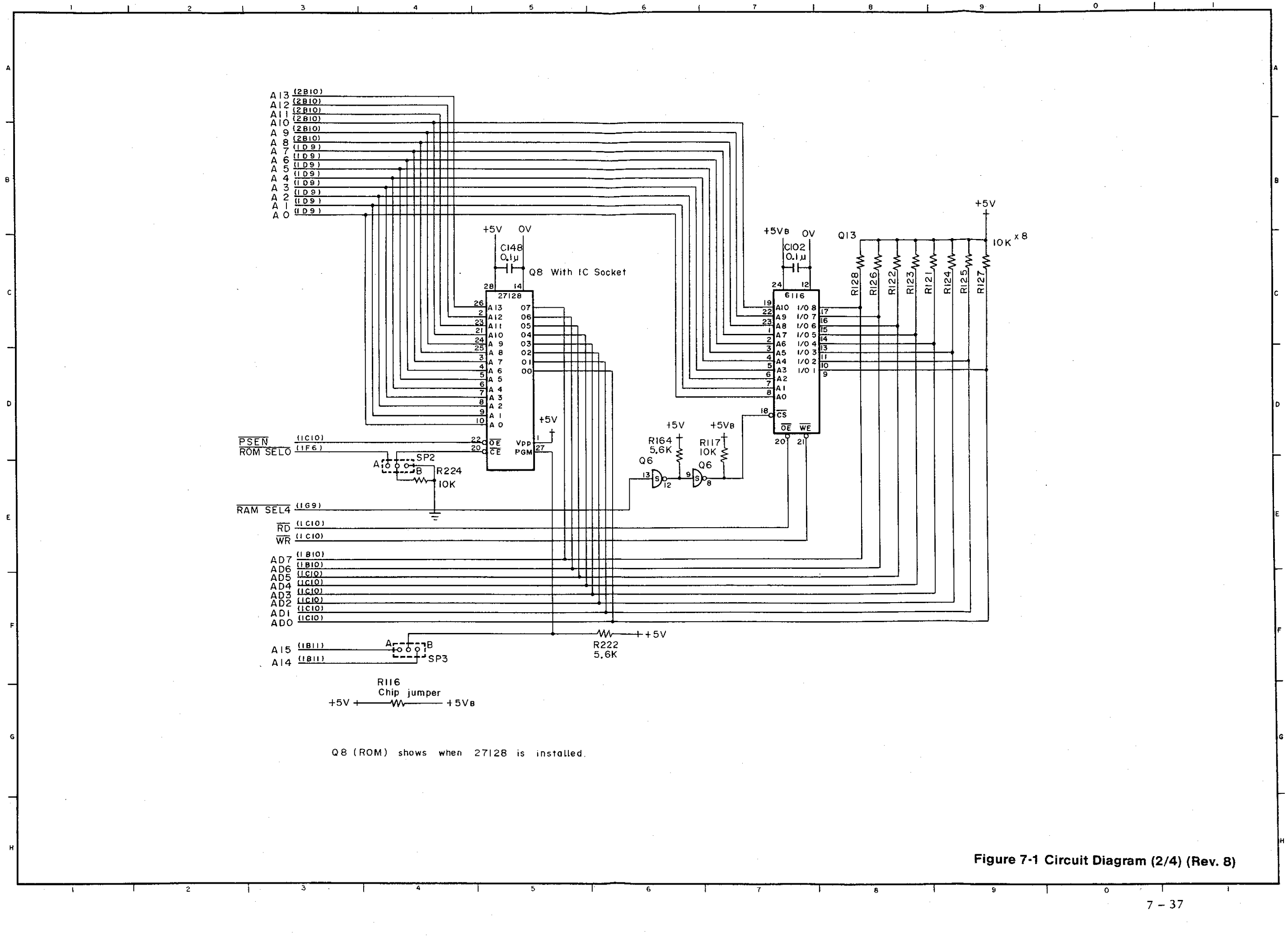

| AC source | F1 | Remarks |
|---|---|---|
| 120 V | 250 V 1.0 A | SLPB-2 |
| 220 V | 250 V 0.6 A | SLPB-3 |
| 240 V | 250 V 0.5 A | SLPB-4 |

**Figure 7-1 Circuit Diagram (4/4) (Rev. 7)**




| Part name | Circuit board revision No. | Rev. |
|---|---|---|
| SLMC-2 circuit board | 8 | 8 |
| SLSQ circuit board | 3 | 3 |
| SLPB circuit board | 4 | 4 |

**Figure 7-1 Circuit Diagram (1/4) (Rev. 8)**




Q8 (ROM) shows when 27128 is installed.

**Figure 7-1 Circuit Diagram (2/4) (Rev. 8)**

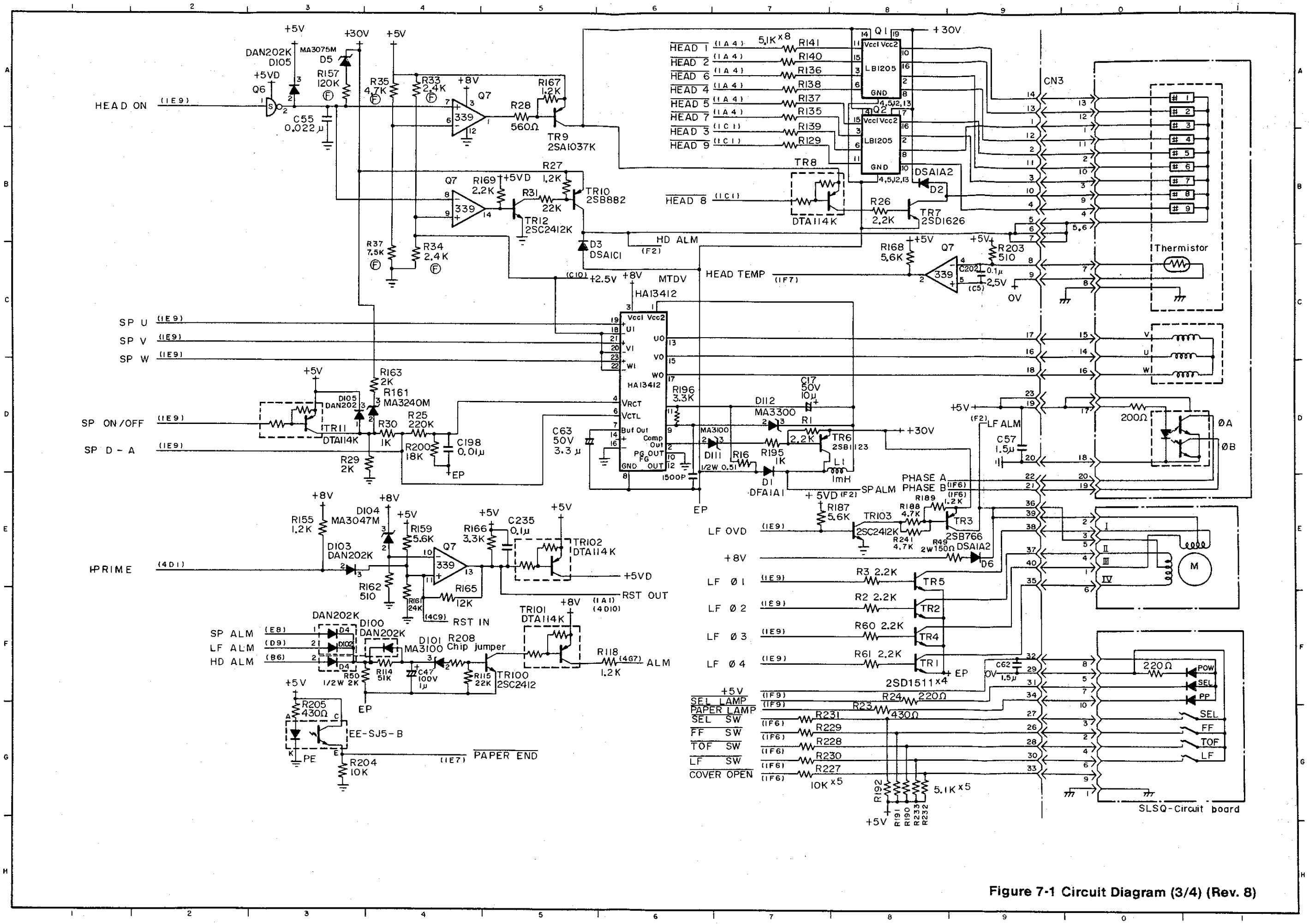
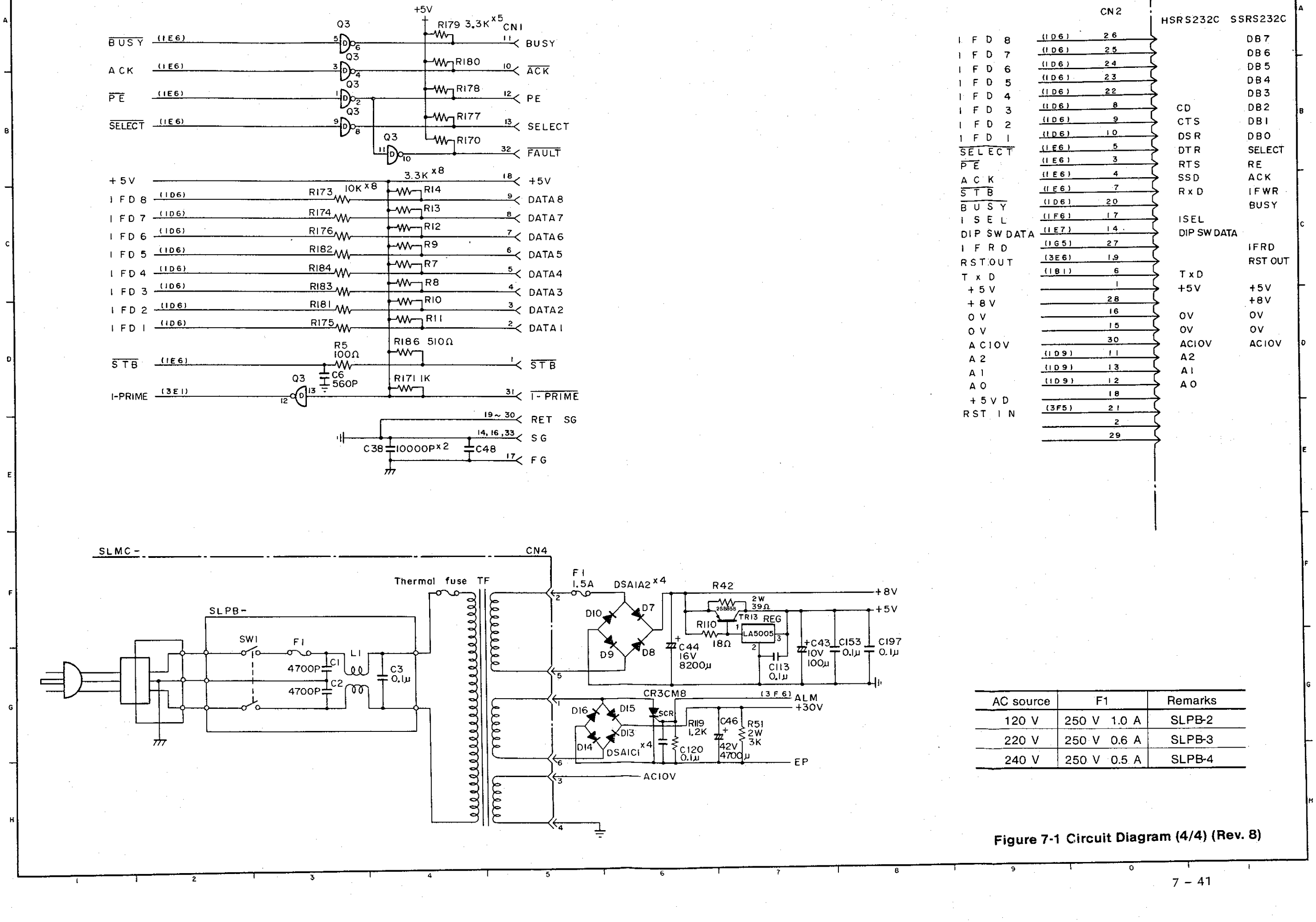



**Figure 7-1 Circuit Diagram (3/4) (Rev. 8)**

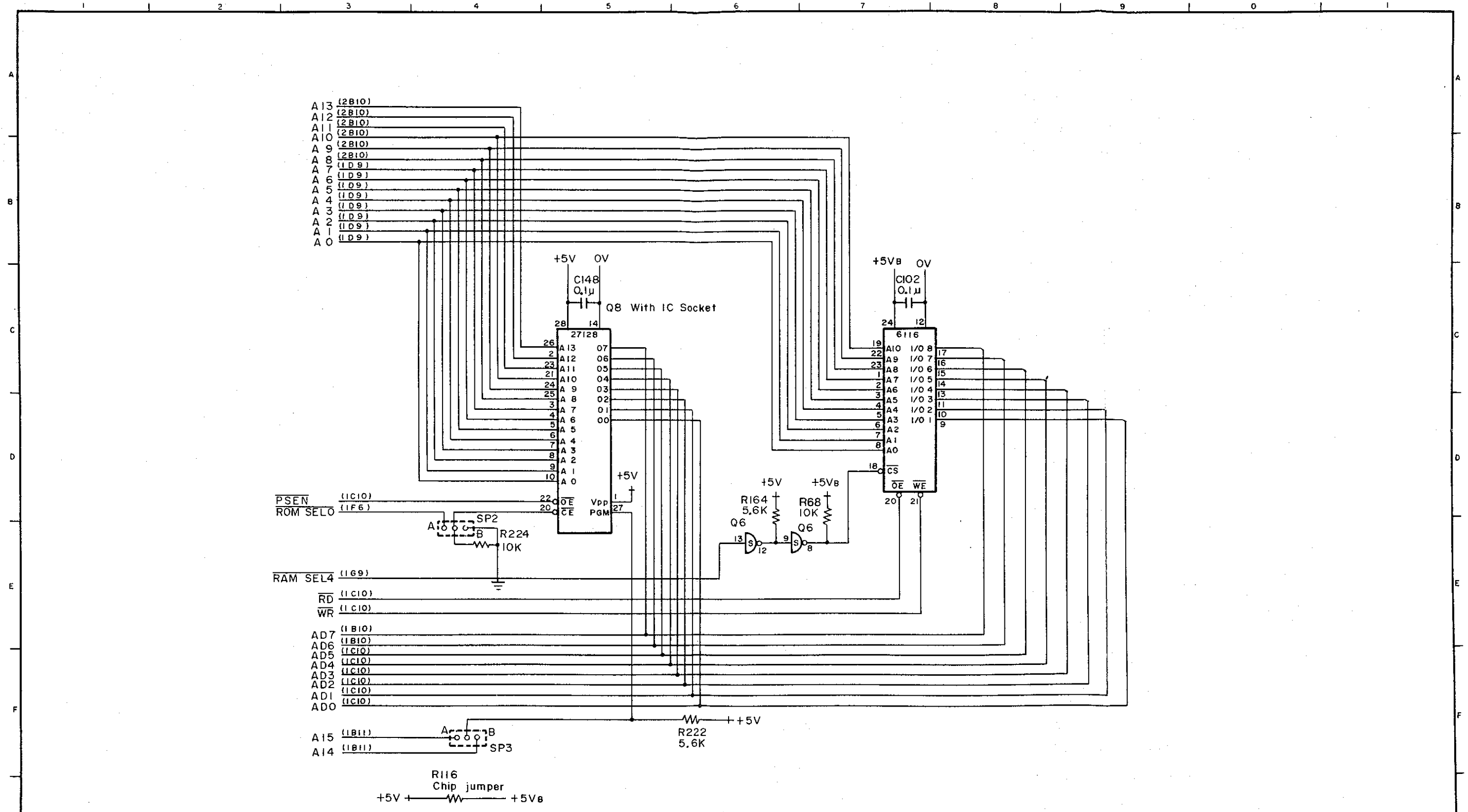



| AC source | F1 | Remarks |
|---|---|---|
| 120 V | 250 V 1.0 A | SLPB-2 |
| 220 V | 250 V 0.6 A | SLPB-3 |
| 240 V | 250 V 0.5 A | SLPB-4 |

**Figure 7-1 Circuit Diagram (4/4) (Rev. 8)**

| Part name | Circuit board revision No. | Rev. |
|---|---|---|
| SLMC-2 circuit board | 9 | 9 |
| SLSQ circuit board | 3 | 3 |
| SLPB circuit board | 4 | 4 |

**Figure 7-1 Circuit Diagram (1/4) (Rev. 9)**




Q8 (ROM) shows when 27128 is installed.

**Figure 7-1 Circuit Diagram (2/4) (Rev. 9)**

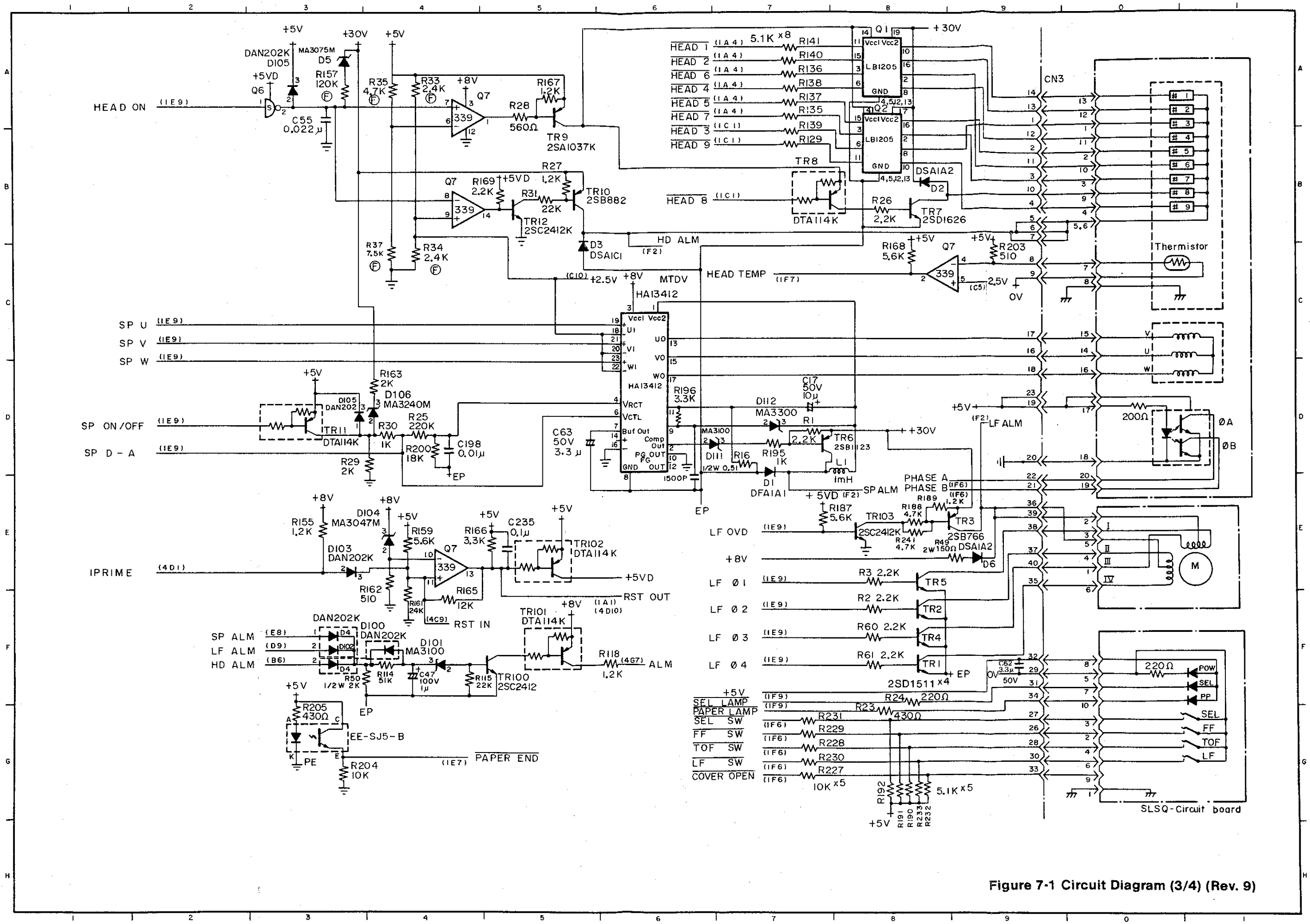
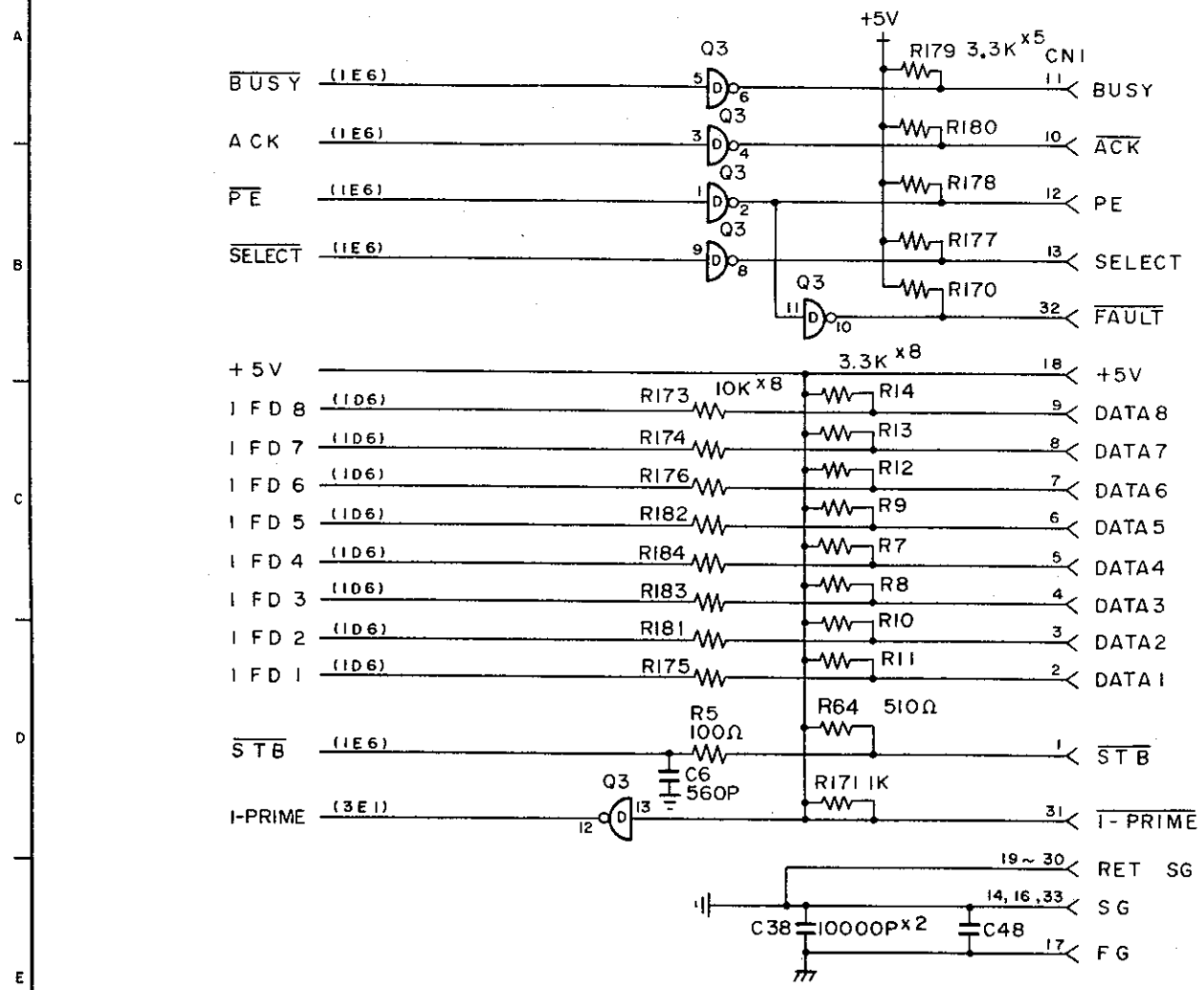
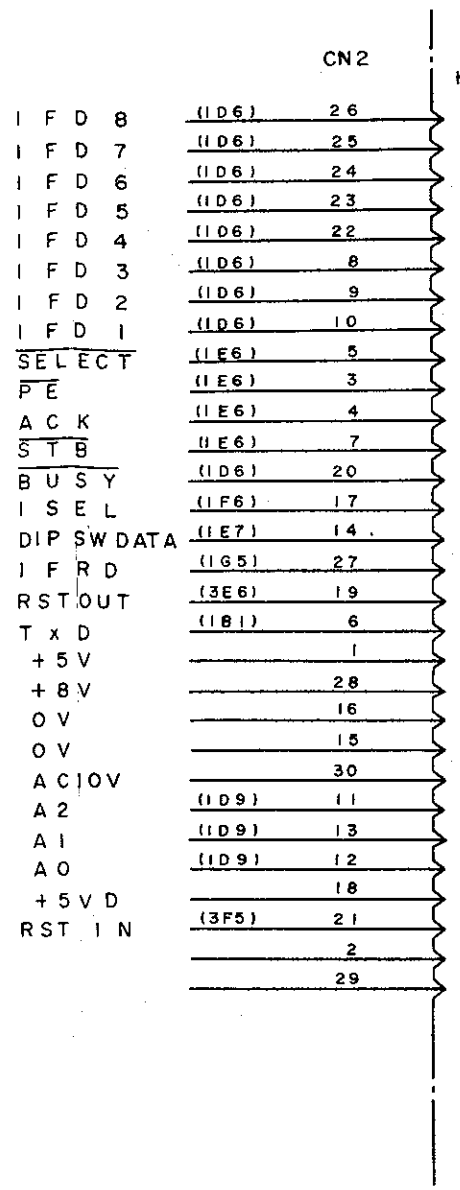
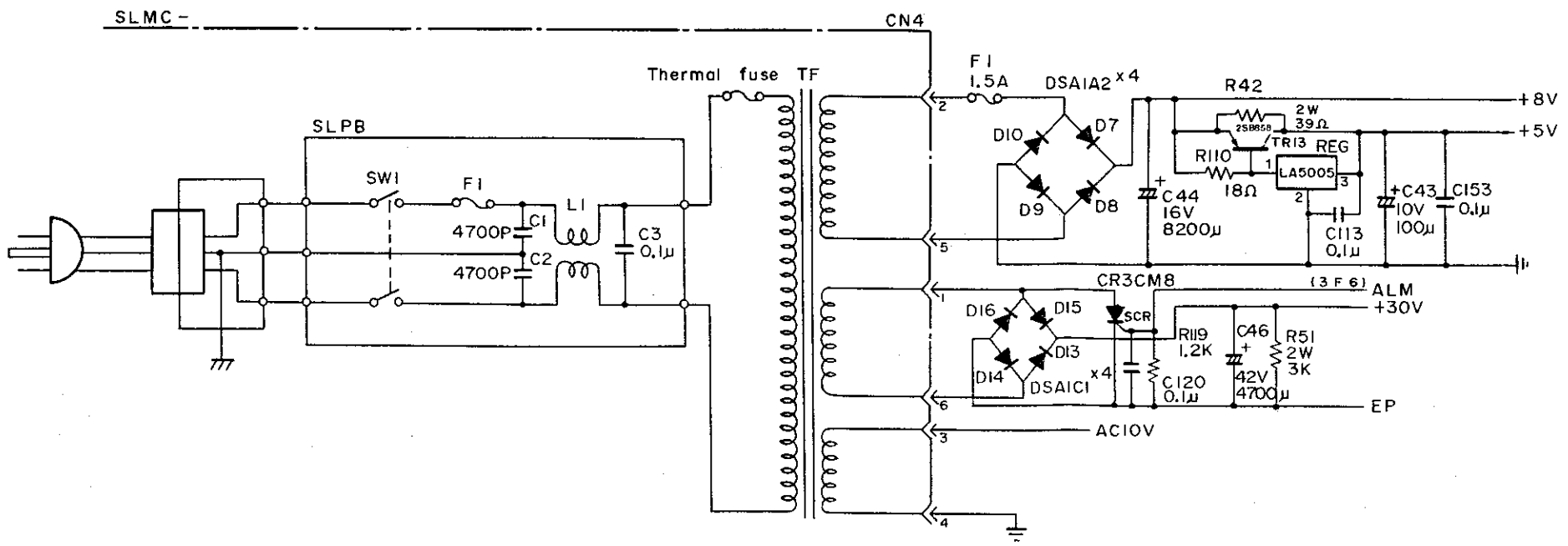



**Figure 7-1 Circuit Diagram (3/4) (Rev. 9)**

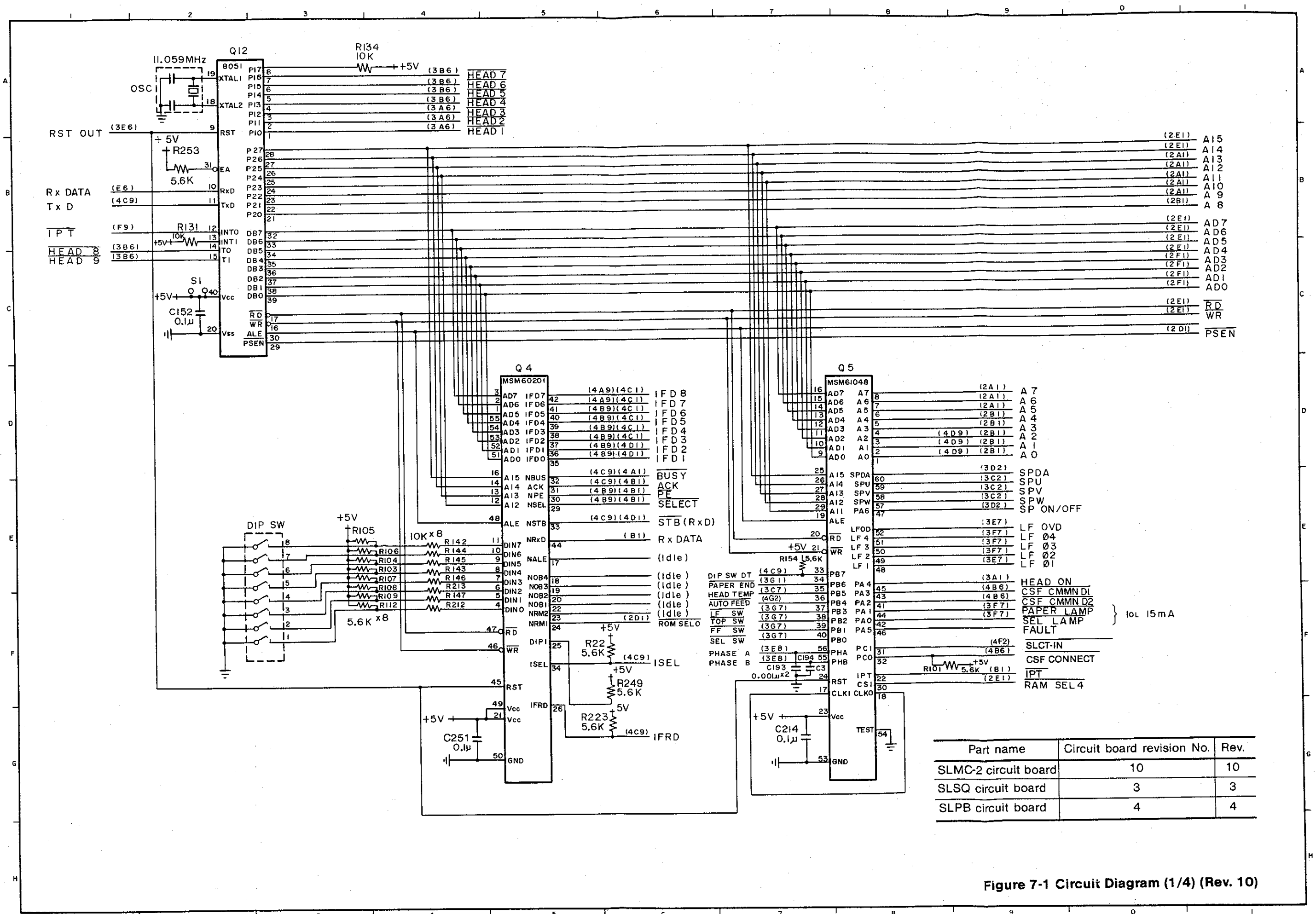


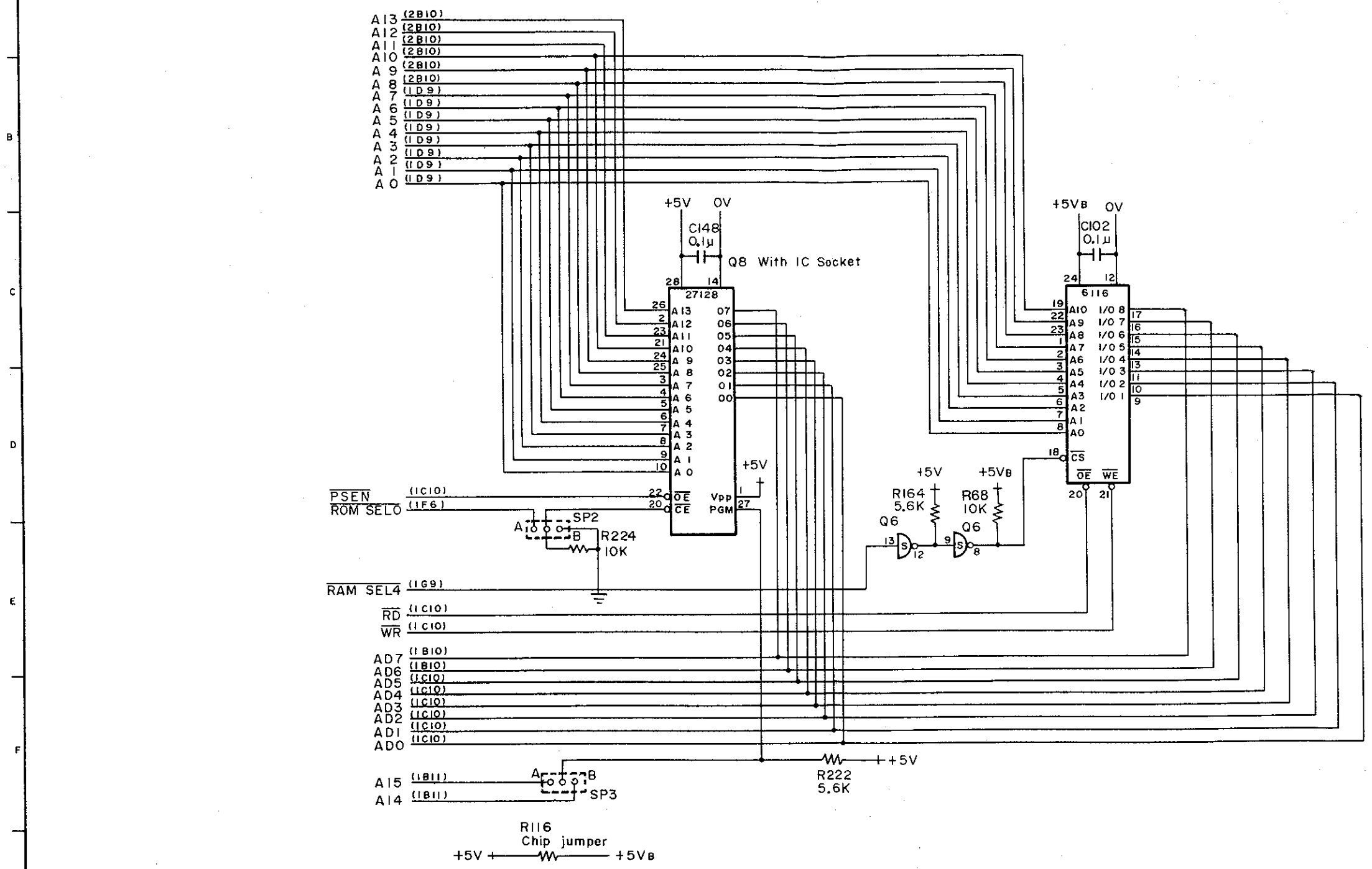

| AC source | F1 | Remarks |
|---|---|---|
| 120 V | 250 V 1.0 A | SLPB-2 |
| 220 V | 250 V 0.6 A | SLPB-3 |
| 240 V | 250 V 0.5 A | SLPB-4 |

**Figure 7-1 Circuit Diagram (4/4) (Rev. 9)**




| Part name | Circuit board revision No. | Rev. |
|---|---|---|
| SLMC-2 circuit board | 10 | 10 |
| SLSQ circuit board | 3 | 3 |
| SLPB circuit board | 4 | 4 |

**Figure 7-1 Circuit Diagram (1/4) (Rev. 10)**




Q8 (ROM) shows when 27128 is installed.

**Figure 7-1 Circuit Diagram (2/4) (Rev. 10)**

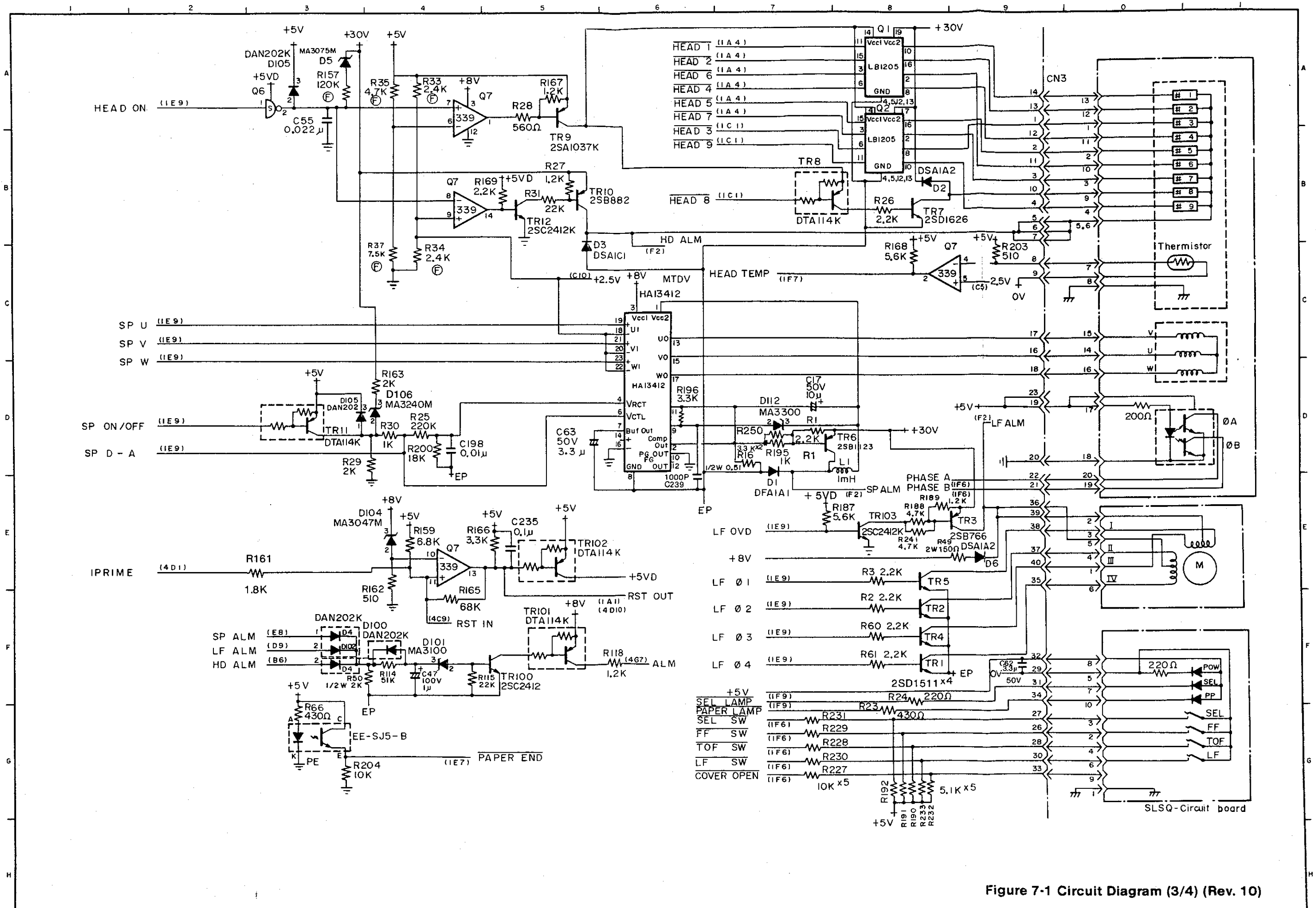
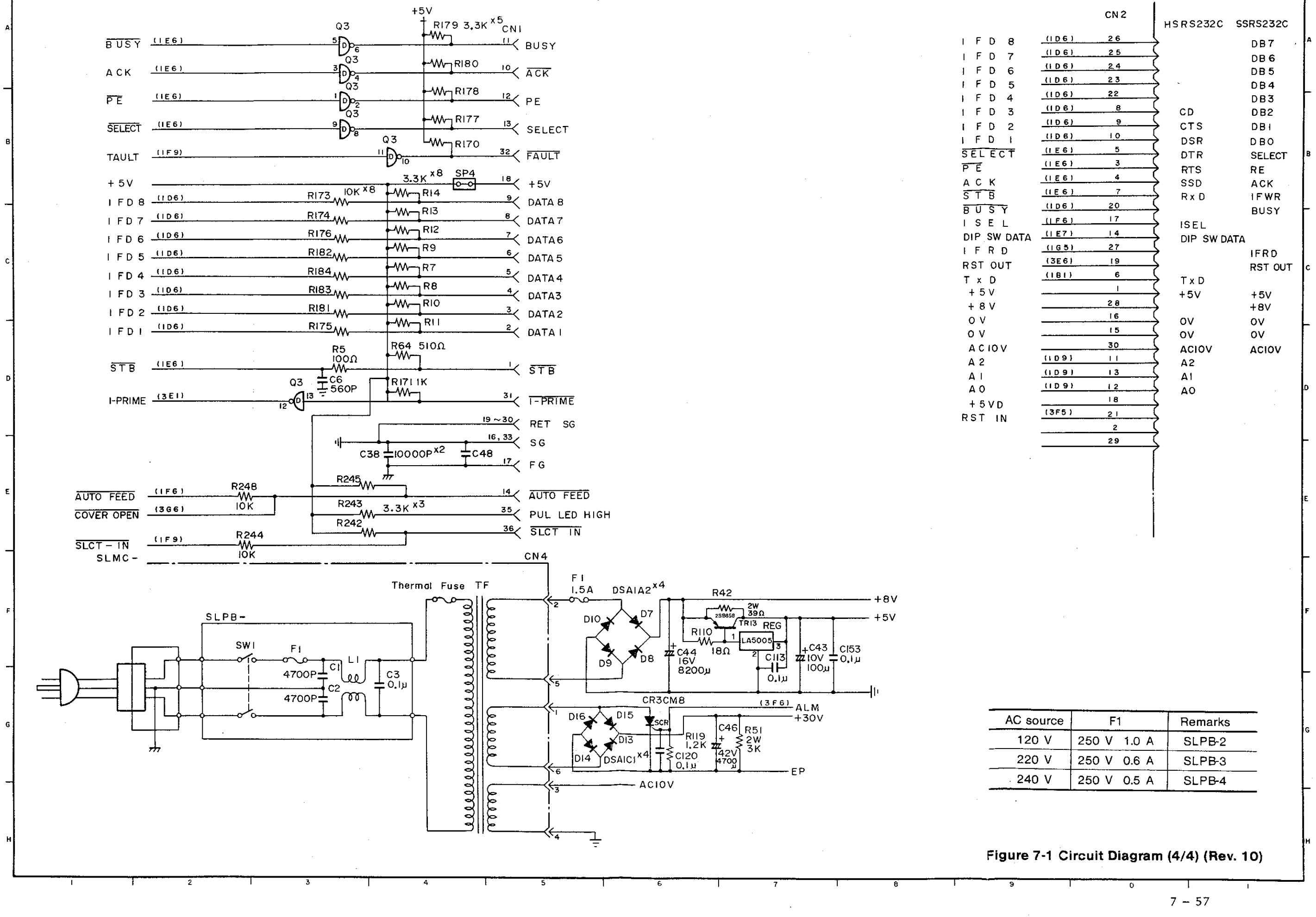
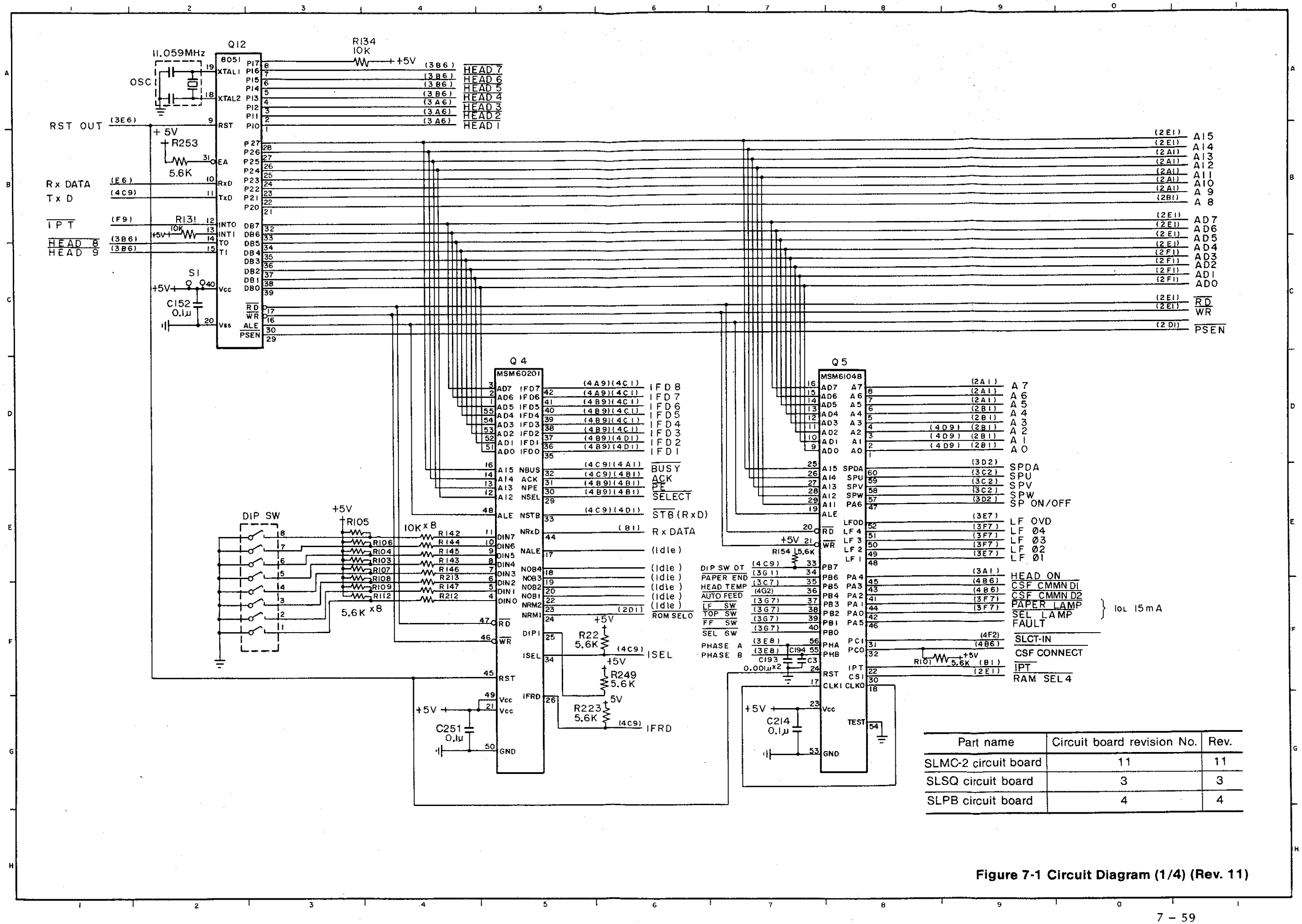



**Figure 7-1 Circuit Diagram (3/4) (Rev. 10)**



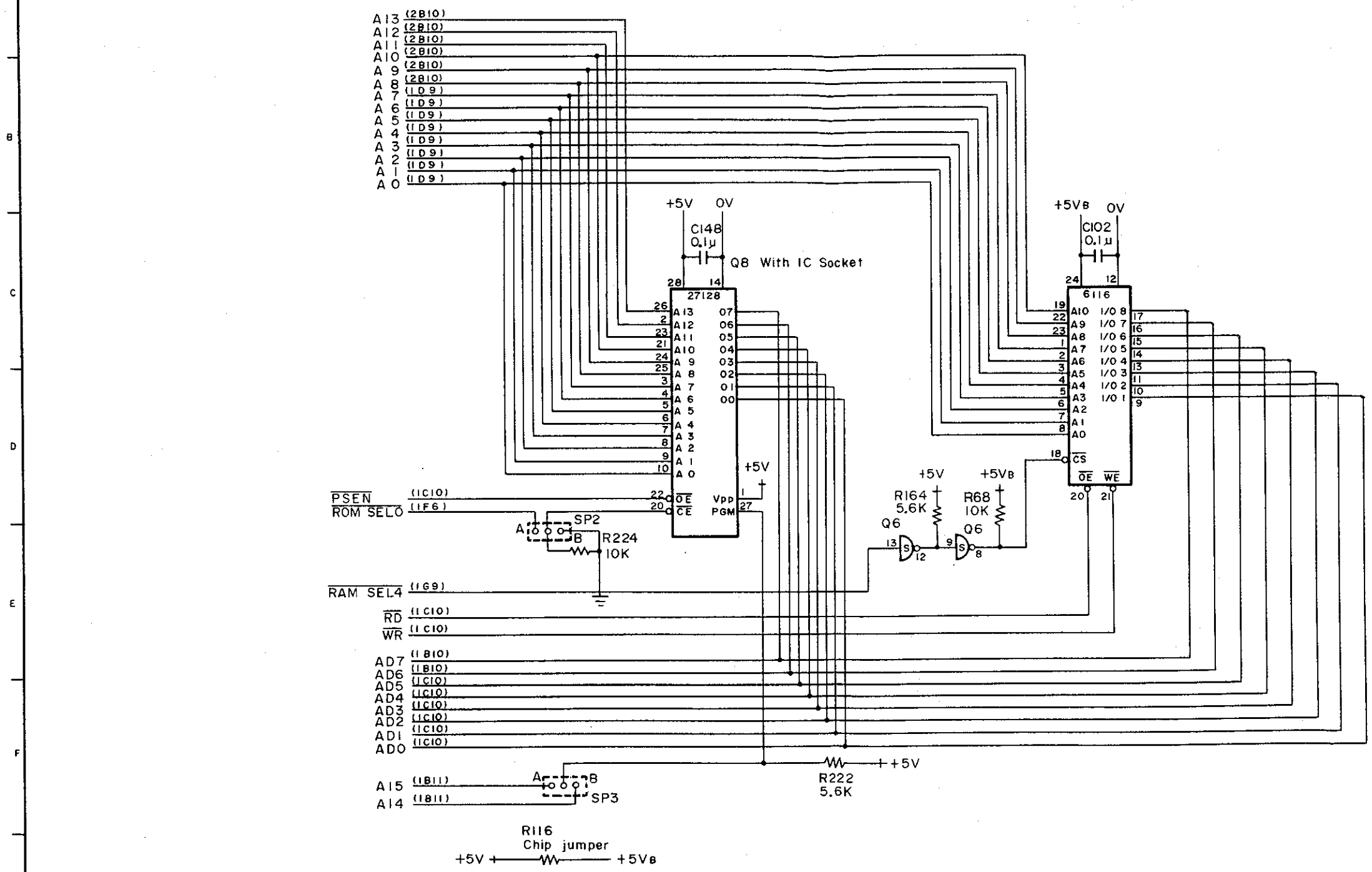

| AC source | F1 | Remarks |
|---|---|---|
| 120 V | 250 V 1.0 A | SLPB-2 |
| 220 V | 250 V 0.6 A | SLPB-3 |
| 240 V | 250 V 0.5 A | SLPB-4 |

**Figure 7-1 Circuit Diagram (4/4) (Rev. 10)**




| Part name | Circuit board revision No. | Rev. |
|---|---|---|
| SLMC-2 circuit board | 11 | 11 |
| SLSQ circuit board | 3 | 3 |
| SLPB circuit board | 4 | 4 |

**Figure 7-1 Circuit Diagram (1/4) (Rev. 11)**




Q8 (ROM) shows when 27128 is installed

**Figure 7-1 Circuit Diagram (2/4) (Rev. 11)**

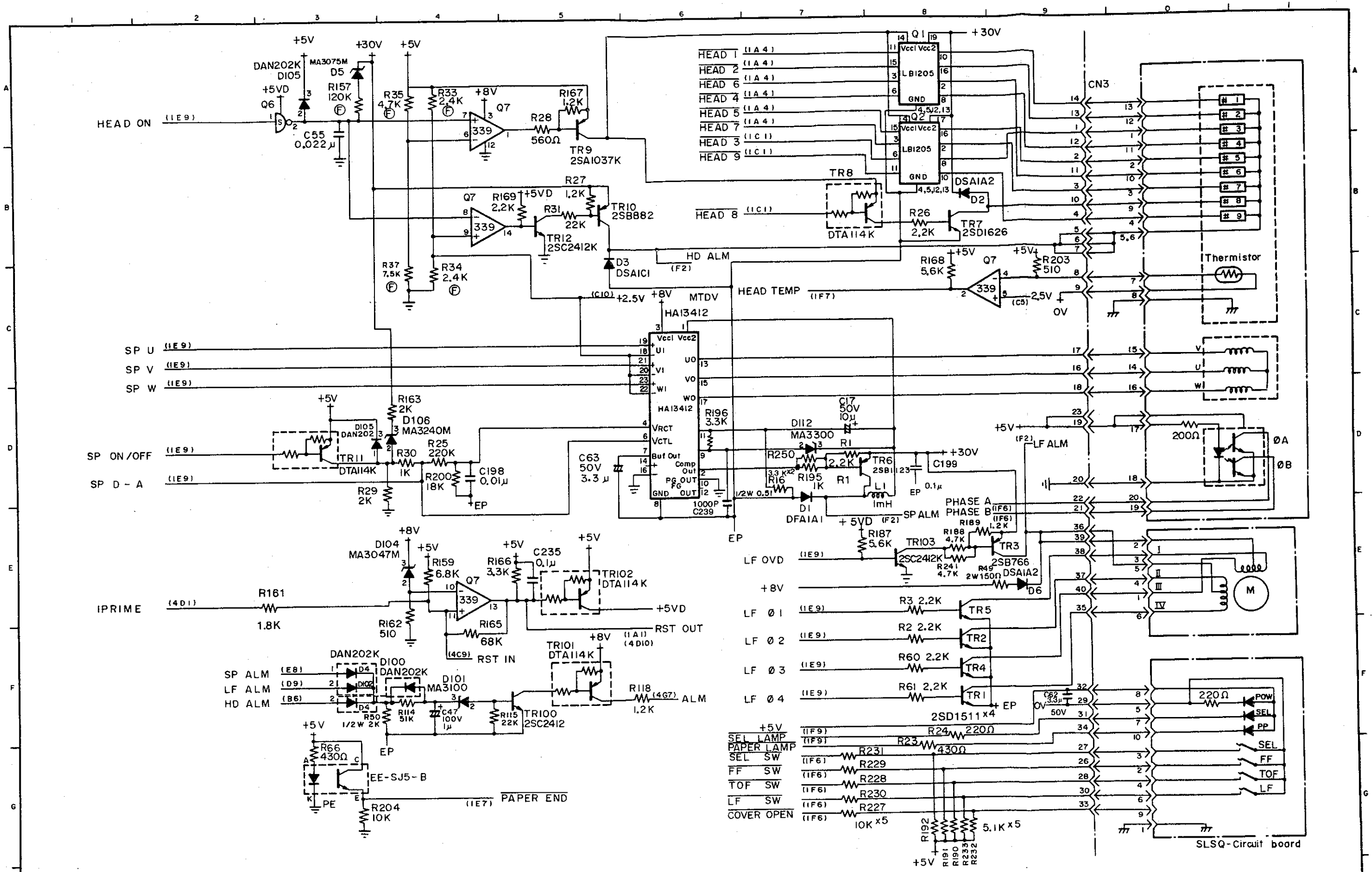
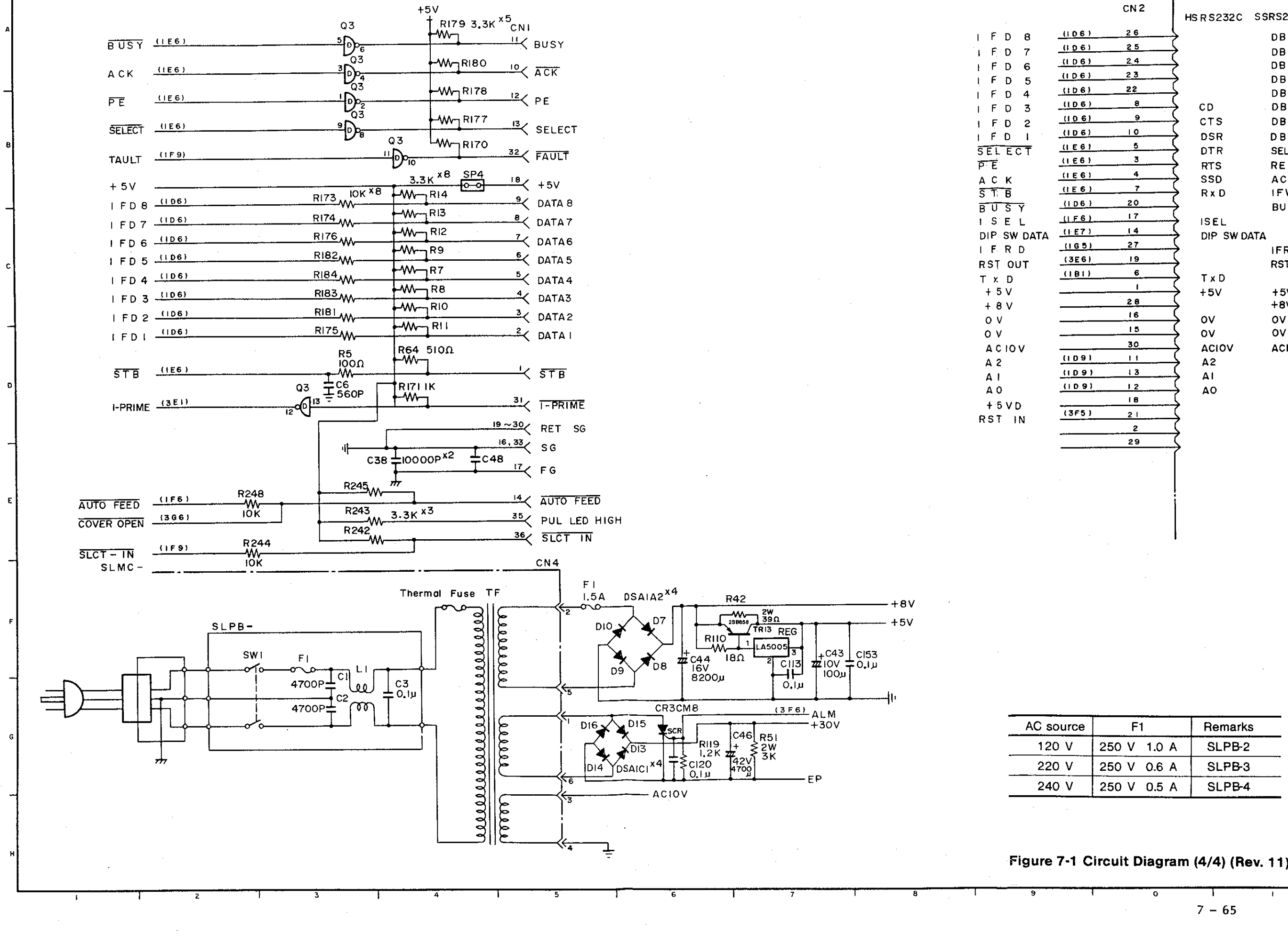
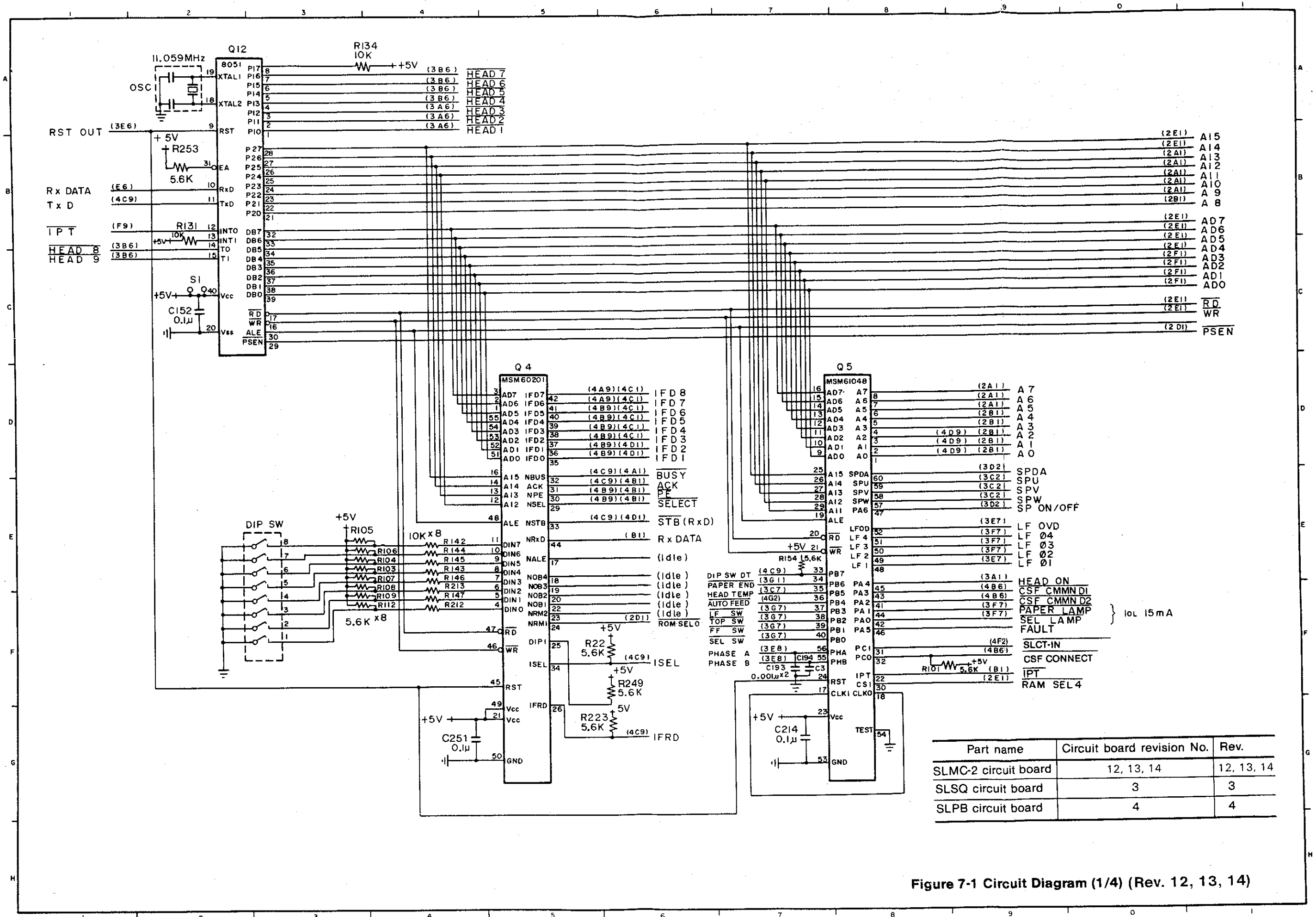



**Figure 7-1 Circuit Diagram (3/4) (Rev. 11)**



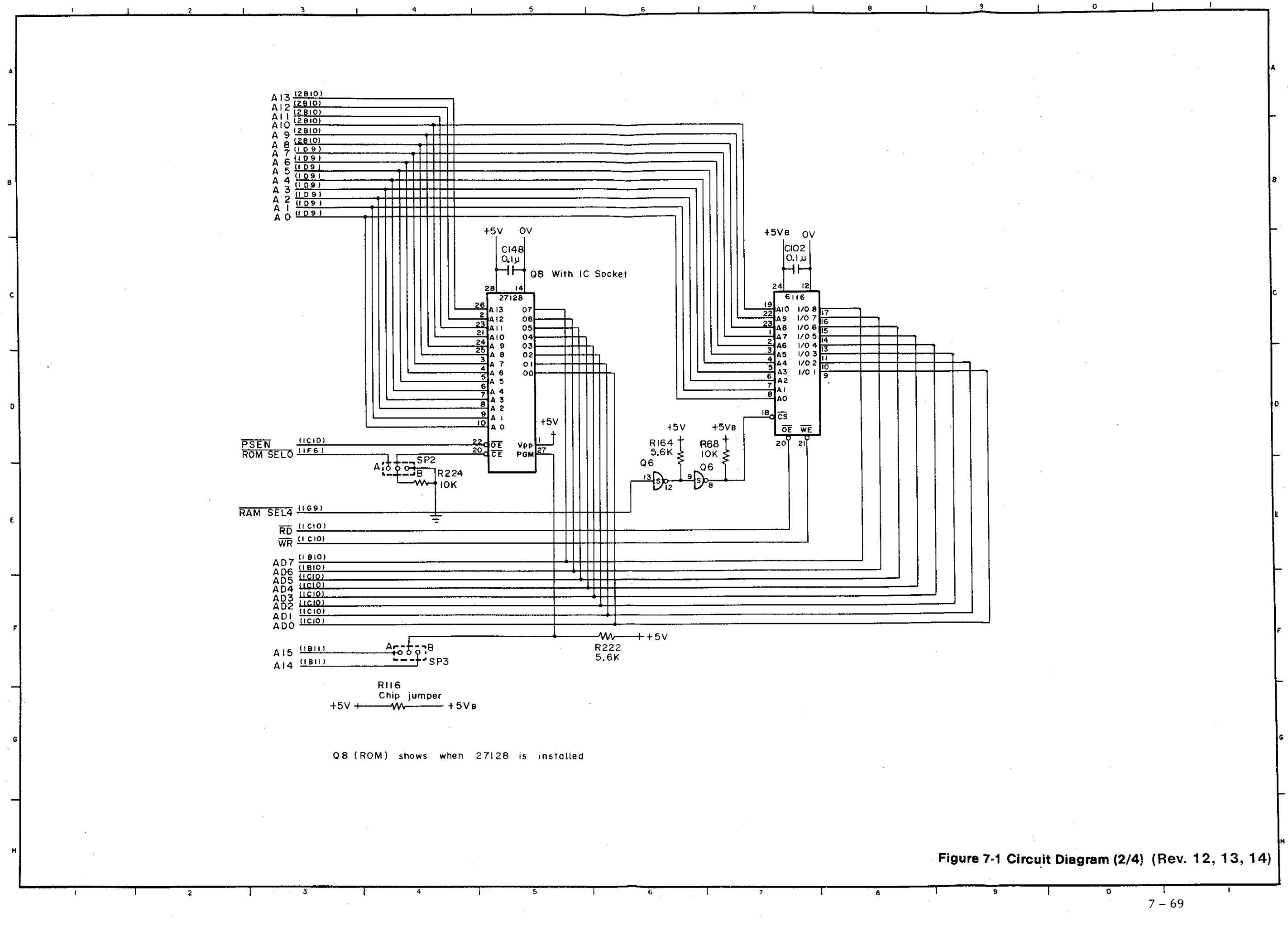

| AC source | F1 | Remarks |
|---|---|---|
| 120 V | 250 V 1.0 A | SLPB-2 |
| 220 V | 250 V 0.6 A | SLPB-3 |
| 240 V | 250 V 0.5 A | SLPB-4 |

**Figure 7-1 Circuit Diagram (4/4) (Rev. 11)**




| Part name | Circuit board revision No. | Rev. |
|---|---|---|
| SLMC-2 circuit board | 12, 13, 14 | 12, 13, 14 |
| SLSQ circuit board | 3 | 3 |
| SLPB circuit board | 4 | 4 |

**Figure 7-1 Circuit Diagram (1/4) (Rev. 12, 13, 14)**




Q8 (ROM) shows when 27128 is installed

**Figure 7-1 Circuit Diagram (2/4) (Rev. 12, 13, 14)**

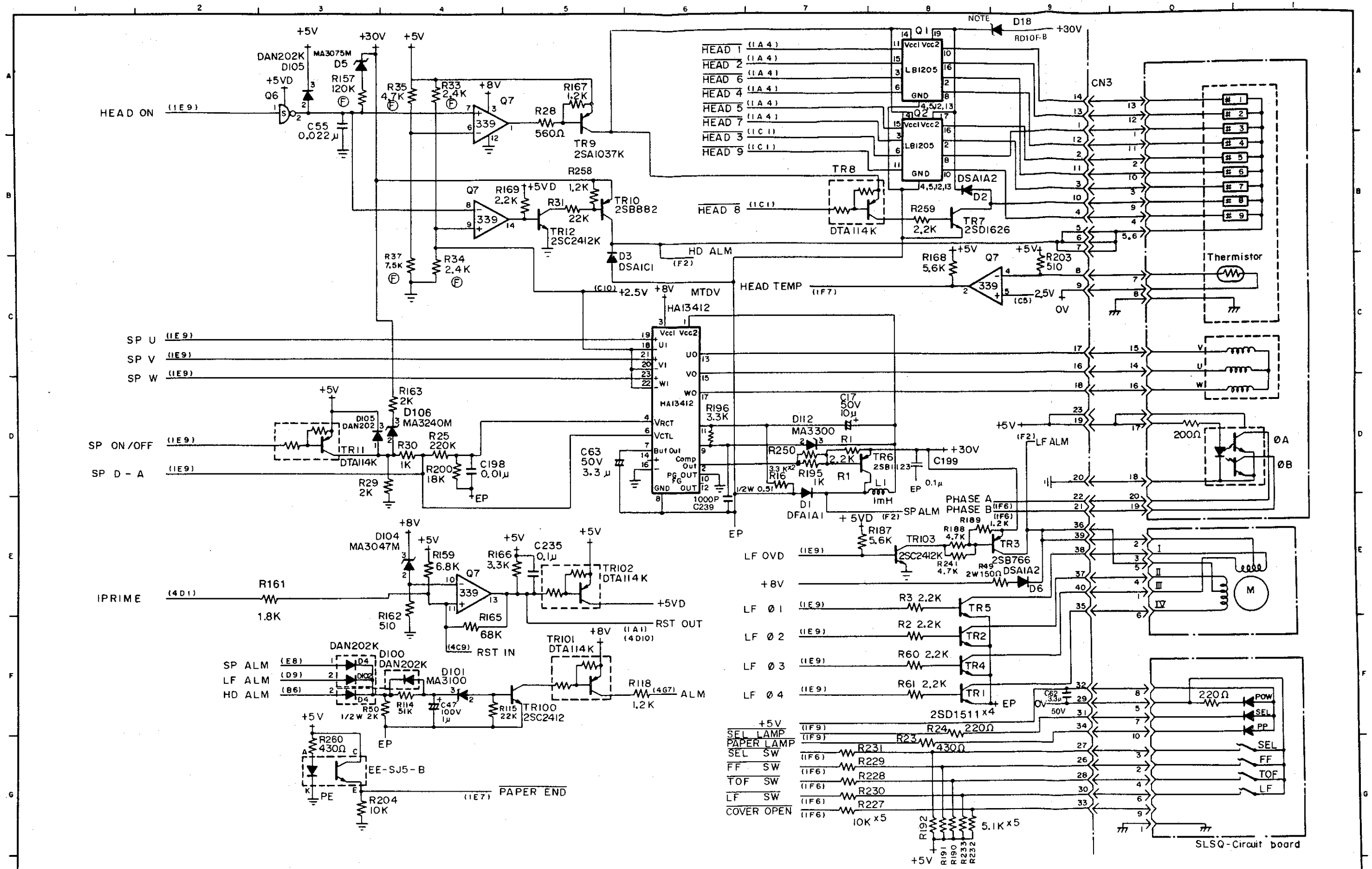
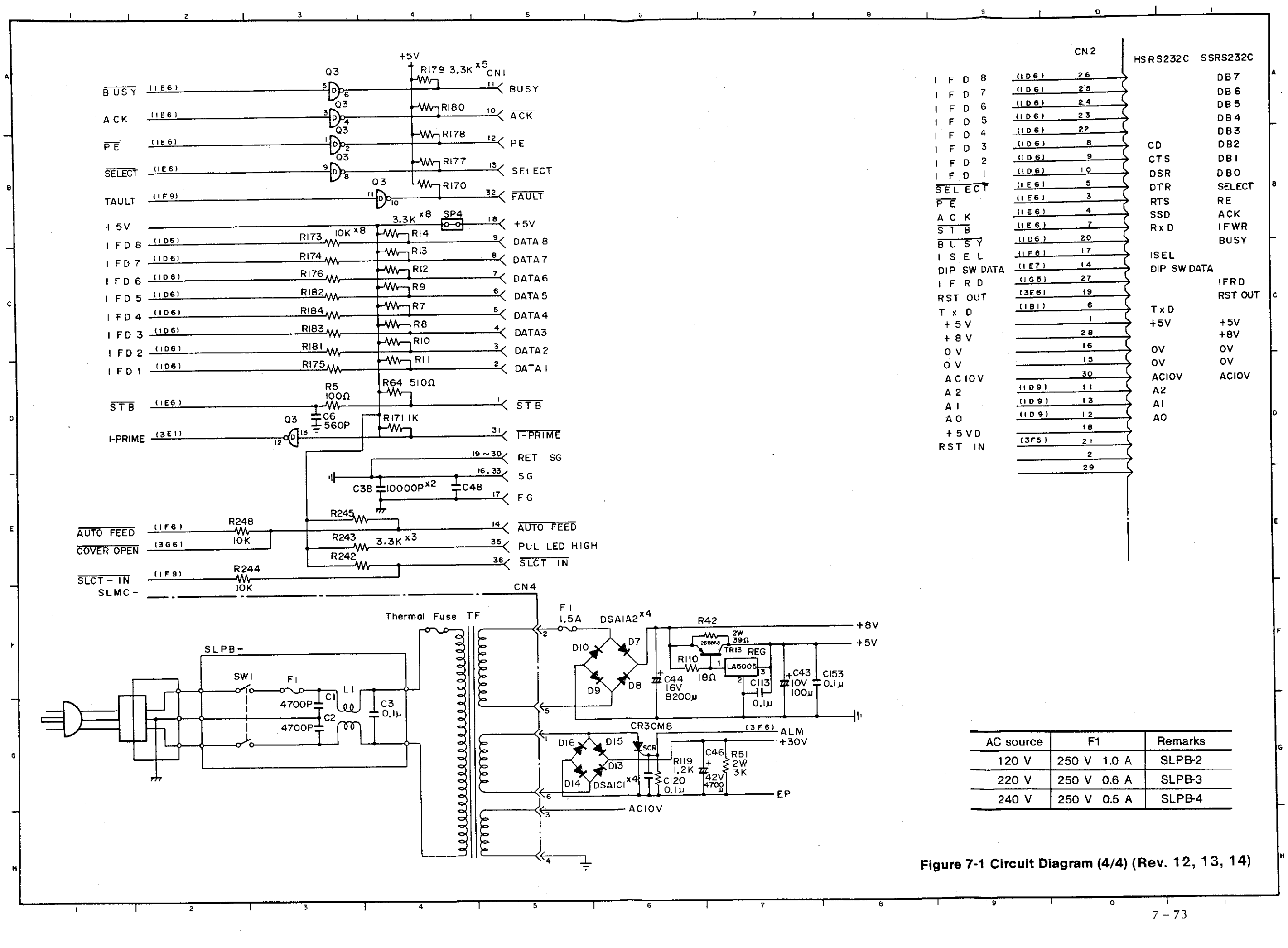
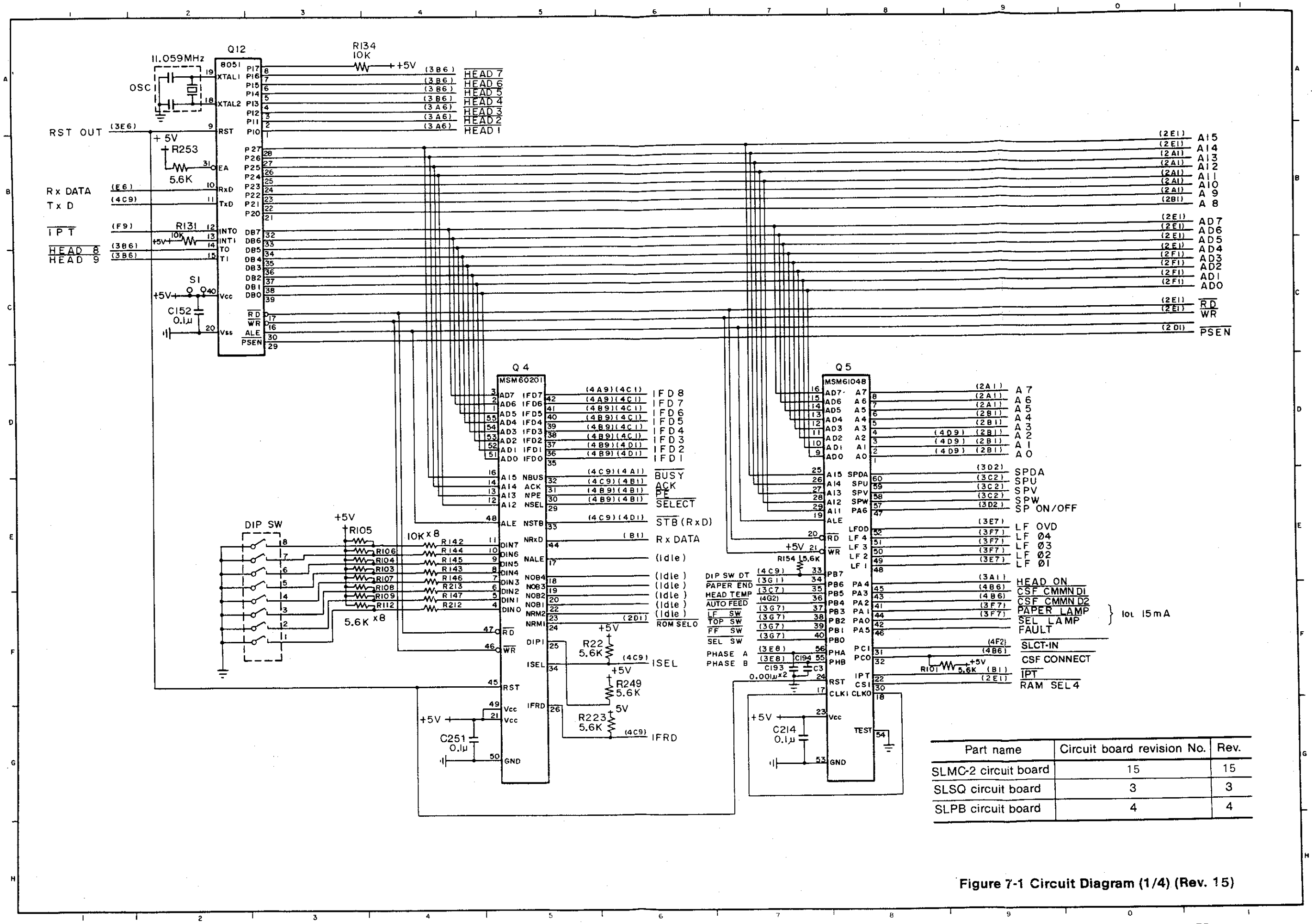



**Figure 7-1 Circuit Diagram (3/4) (Rev. 12, 13, 14)**



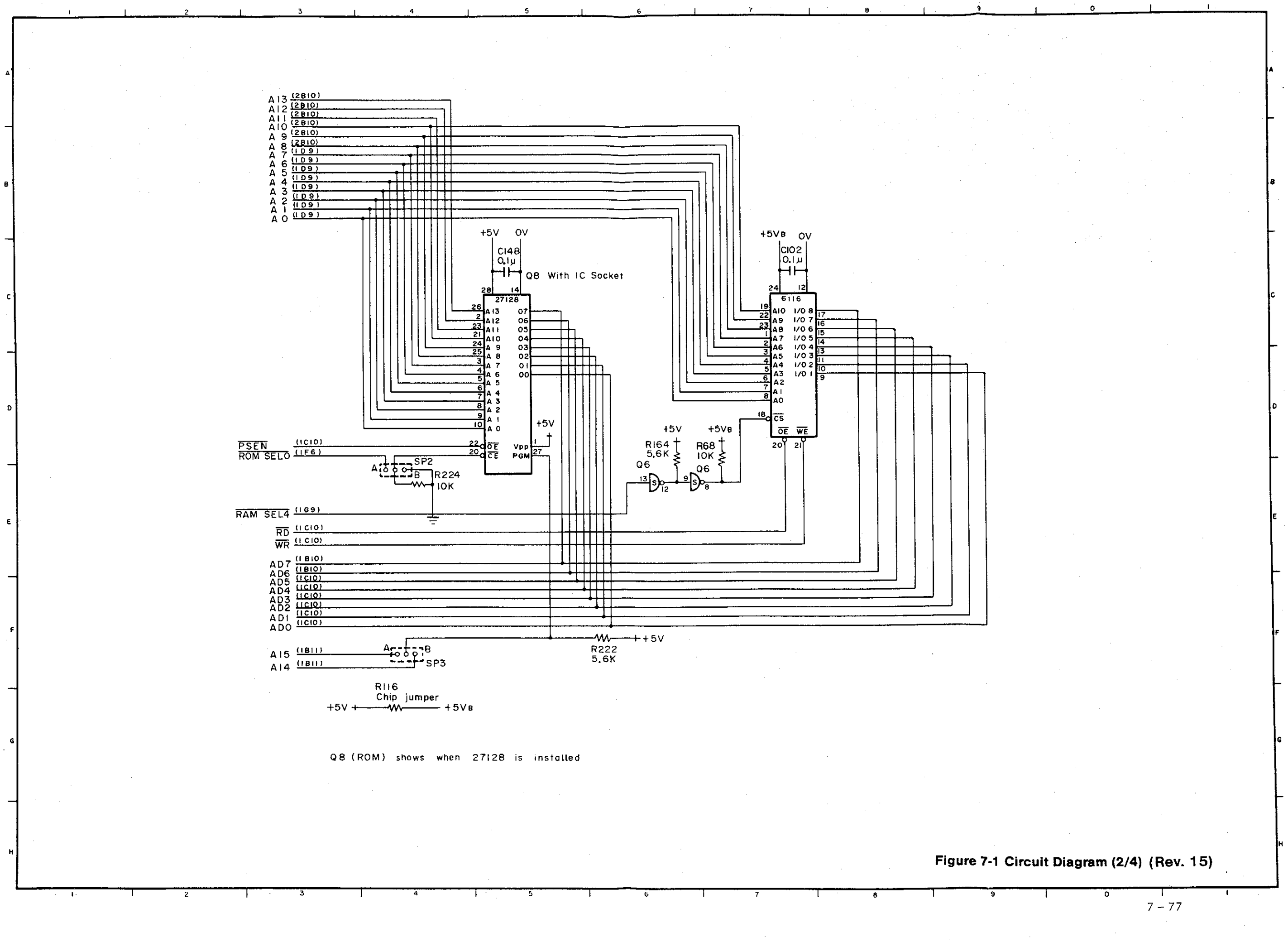

| AC source | F1 | Remarks |
|---|---|---|
| 120 V | 250 V 1.0 A | SLPB-2 |
| 220 V | 250 V 0.6 A | SLPB-3 |
| 240 V | 250 V 0.5 A | SLPB-4 |

**Figure 7-1 Circuit Diagram (4/4) (Rev. 12, 13, 14)**




| Part name | Circuit board revision No. | Rev. |
|---|---|---|
| SLMC-2 circuit board | 15 | 15 |
| SLSQ circuit board | 3 | 3 |
| SLPB circuit board | 4 | 4 |

**Figure 7-1 Circuit Diagram (1/4) (Rev. 15)**




Q8 (ROM) shows when 27128 is installed

**Figure 7-1 Circuit Diagram (2/4) (Rev. 15)**

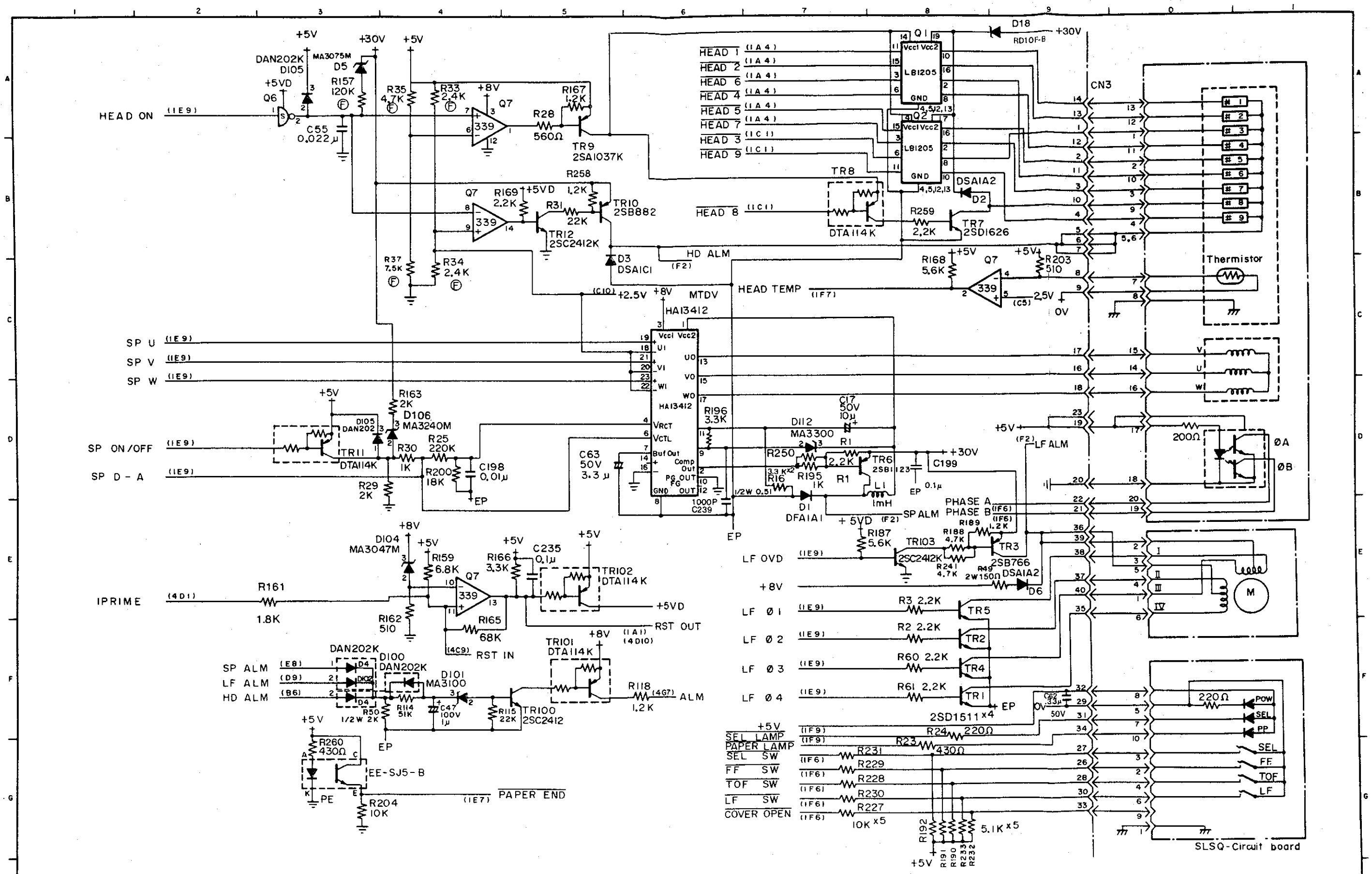
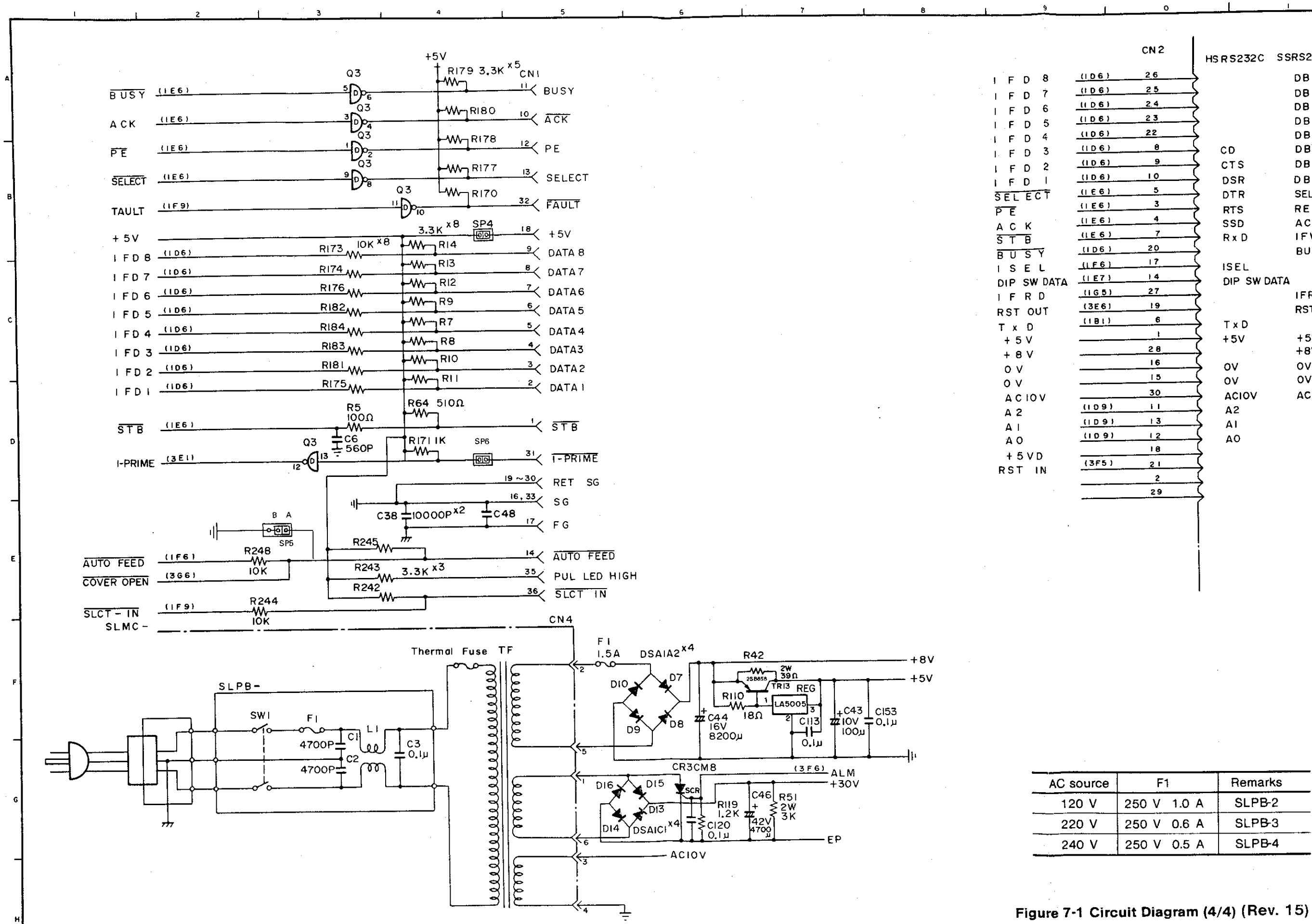
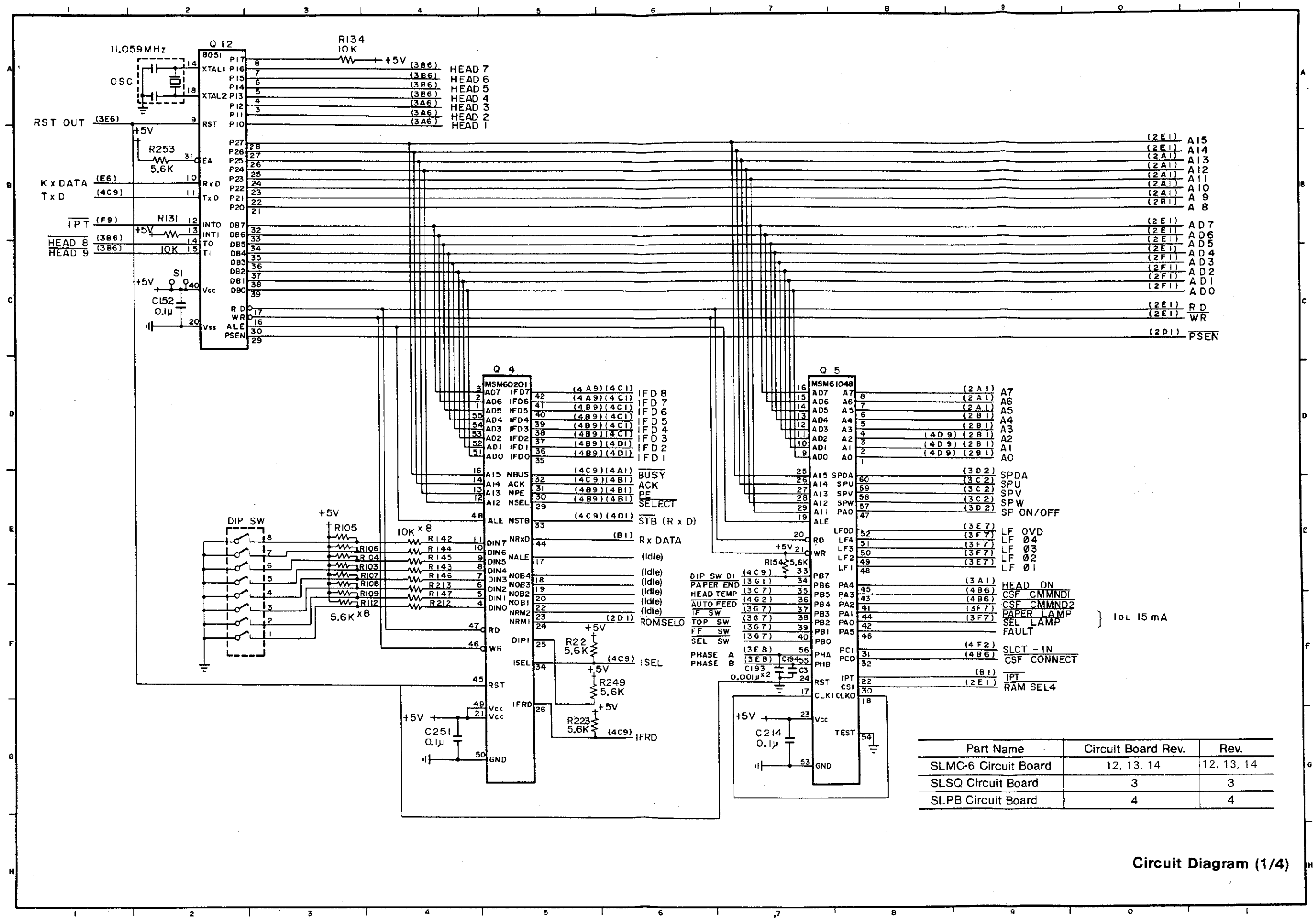



**Figure 7-1 Circuit Diagram (3/4) (Rev. 15)**



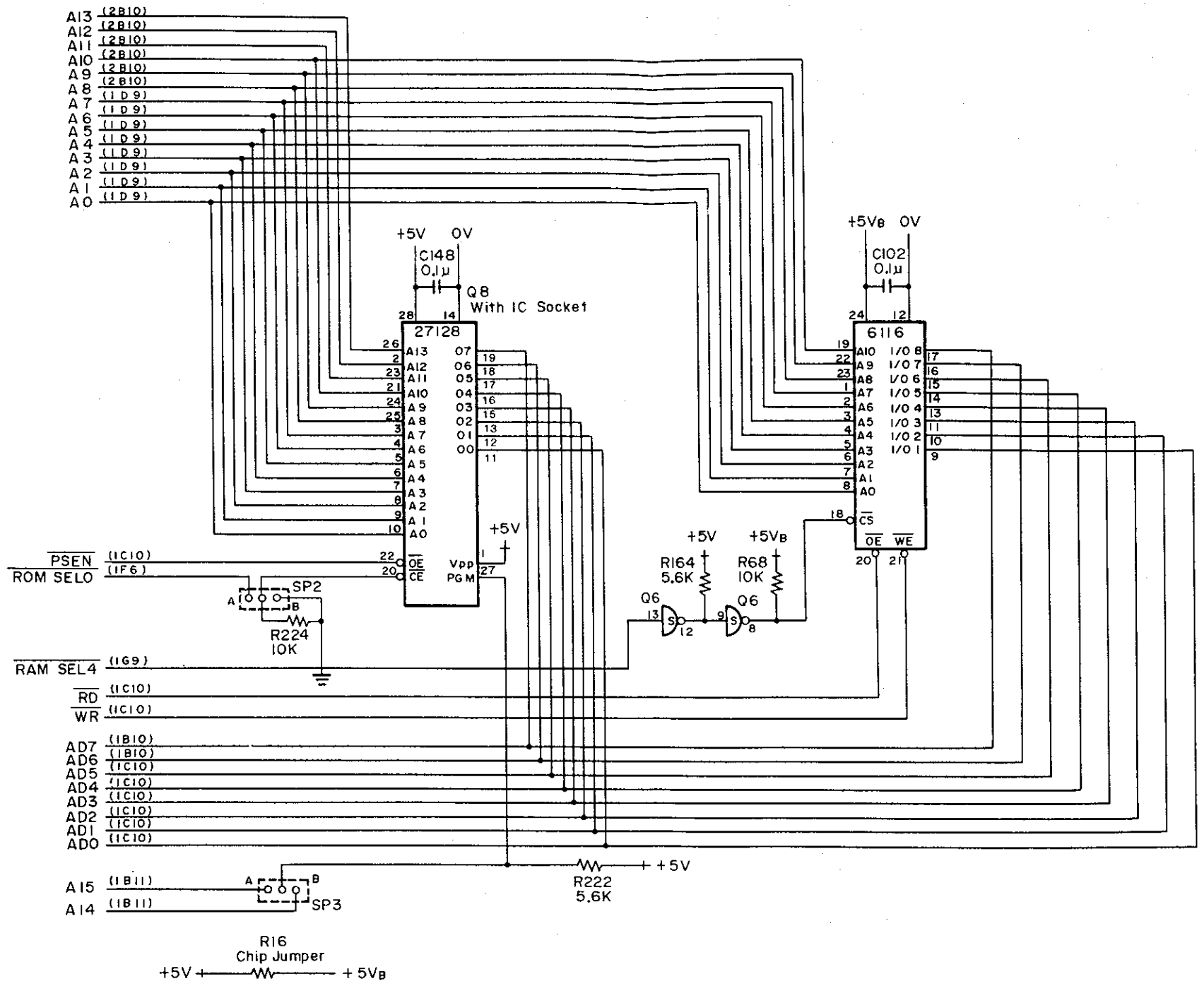

| AC source | F1 | Remarks |
|---|---|---|
| 120 V | 250 V 1.0 A | SLPB-2 |
| 220 V | 250 V 0.6 A | SLPB-3 |
| 240 V | 250 V 0.5 A | SLPB-4 |

**Figure 7-1 Circuit Diagram (4/4) (Rev. 15)**




| Part Name | Circuit Board Rev. | Rev. |
|---|---|---|
| SLMC-6 Circuit Board | 12, 13, 14 | 12, 13, 14 |
| SLSQ Circuit Board | 3 | 3 |
| SLPB Circuit Board | 4 | 4 |

**Circuit Diagram (1/4)**




Q8 (ROM) shows when 27128 is mounted.

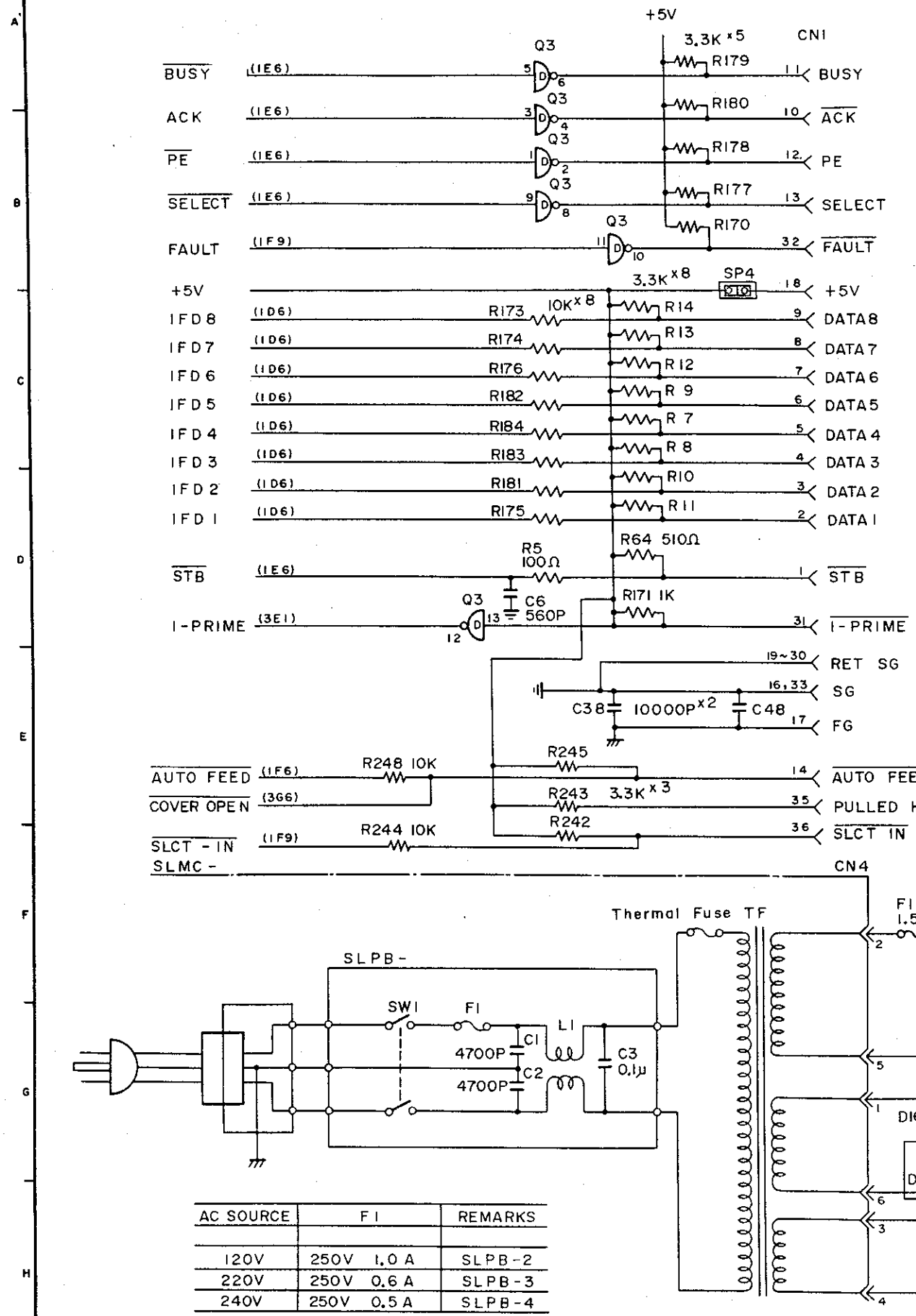
| Part Name | Circuit Board Rev. | Rev. |
|---|---|---|
| SLMC-6 Circuit Board | 12, 13, 14 | 12, 13, 14 |
| SLSQ Circuit Board | 3 | 3 |
| SLPB Circuit Board | 4 | 4 |

**Circuit Diagram (2/4)**

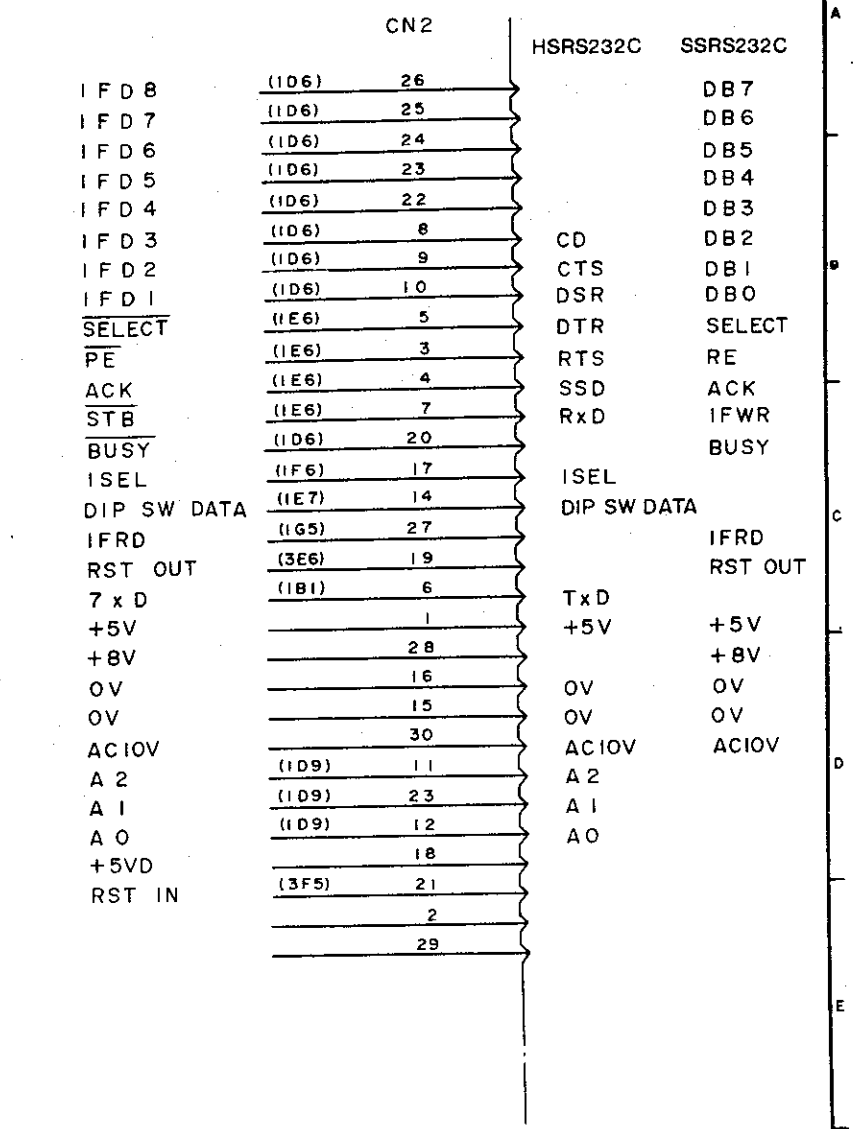
NOTE: Diode D18 is
RD10E-B (up to Rev. 12)
RD10F-B (over Rev. 13)

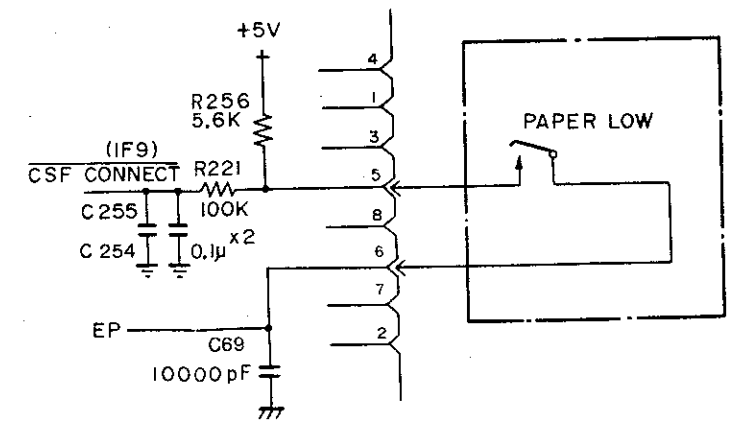
| Part Name | Circuit Board Rev. | Rev. |
|---|---|---|
| SLMC-6 Circuit Board | 12, 13, 14 | 12, 13, 14 |
| SLSQ Circuit Board | 3 | 3 |
| SLPB Circuit Board | 4 | 4 |

**Circuit Diagram (3/4)**



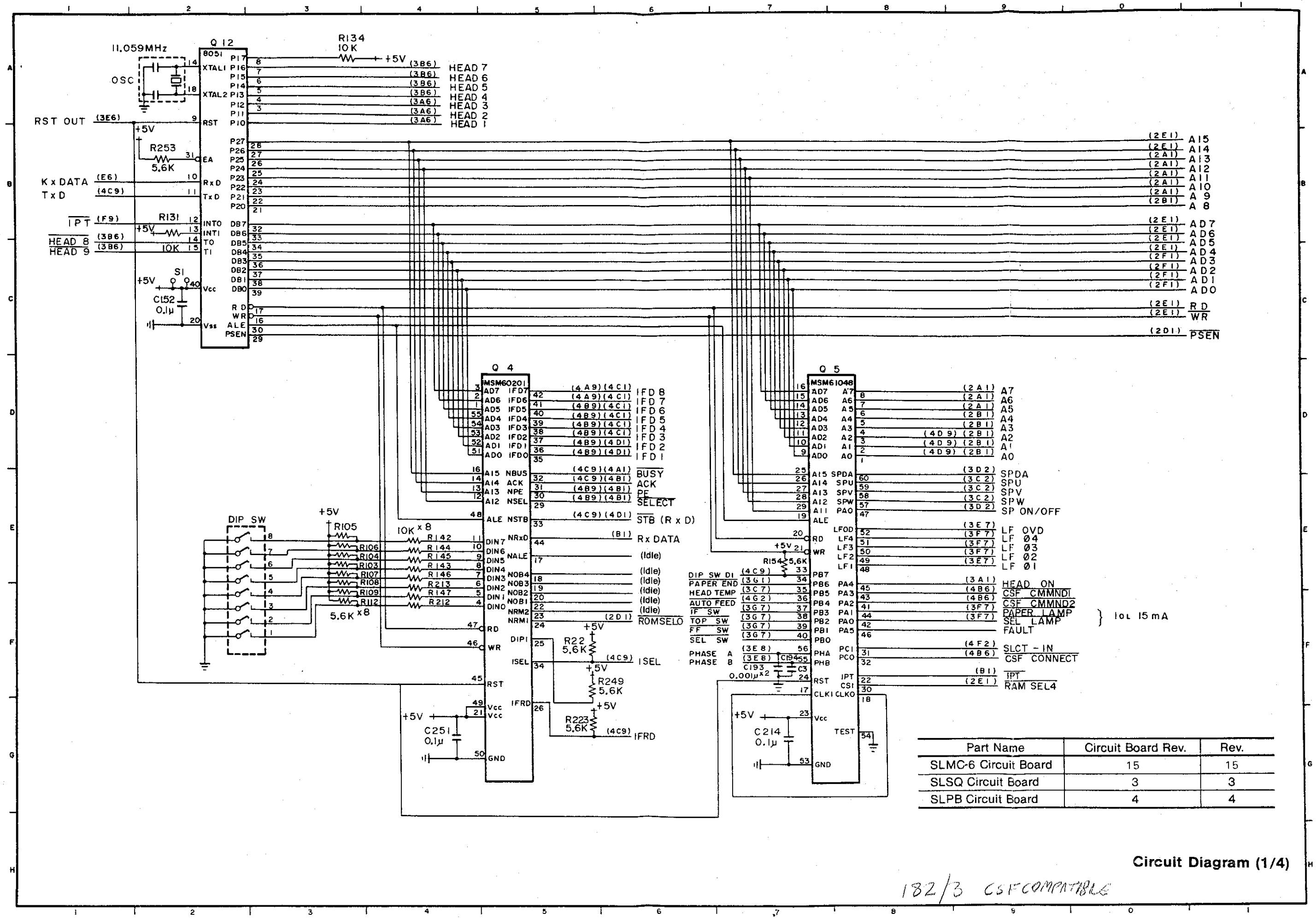

| AC SOURCE | FI | REMARKS |
|---|---|---|
| 120V | 250V 1.0 A | SLPB-2 |
| 220V | 250V 0.6 A | SLPB-3 |
| 240V | 250V 0.5 A | SLPB-4 |




| Part Name | Circuit Board Rev. | Rev. |
|---|---|---|
| SLMC-6 Circuit Board | 12, 13, 14 | 12, 13, 14 |
| SLSQ Circuit Board | 3 | 3 |
| SLPB Circuit Board | 4 | 4 |

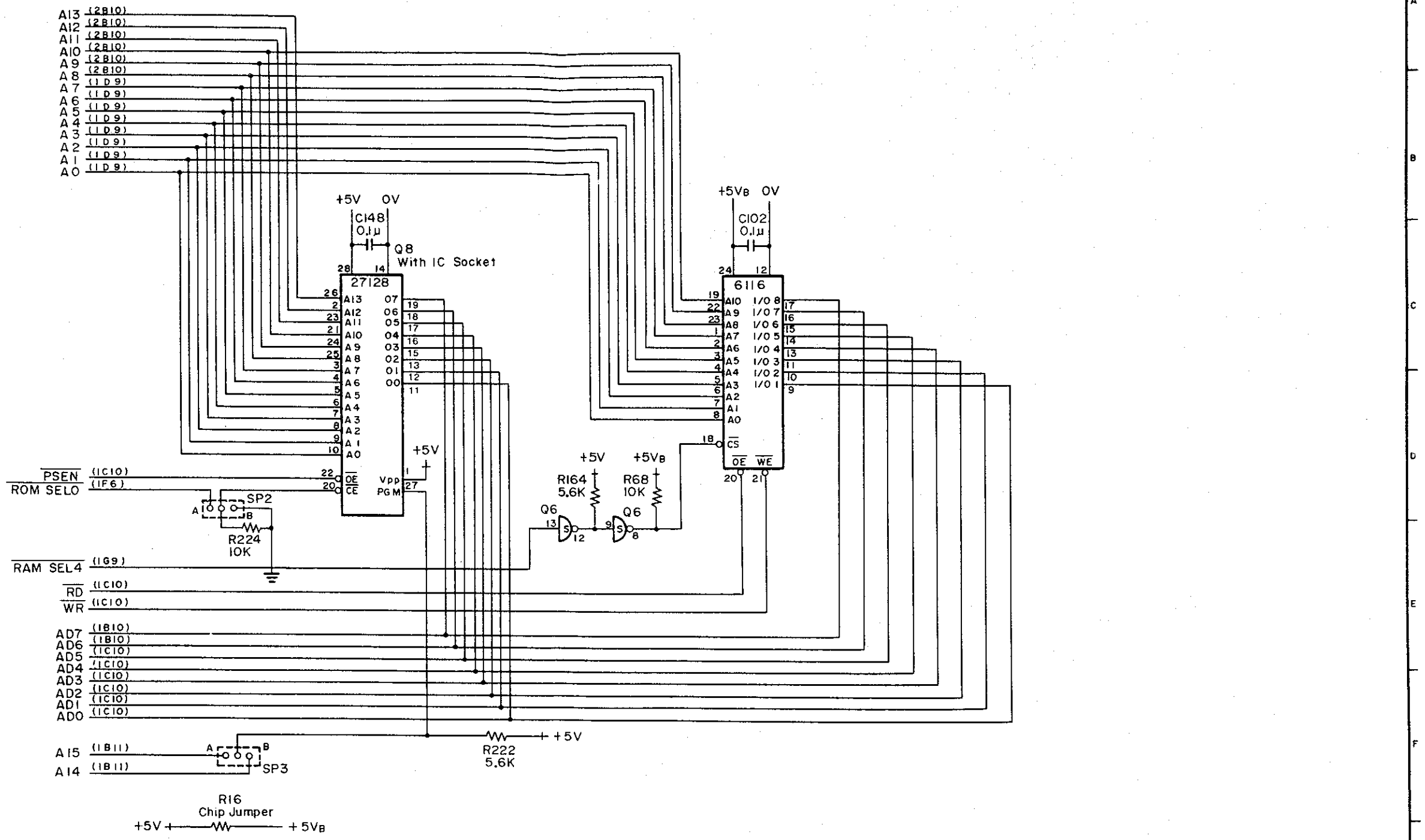
**Circuit Diagram (4/4)**




| Part Name | Circuit Board Rev. | Rev. |
|---|---|---|
| SLMC-6 Circuit Board | 15 | 15 |
| SLSQ Circuit Board | 3 | 3 |
| SLPB Circuit Board | 4 | 4 |

**Circuit Diagram (1/4)**

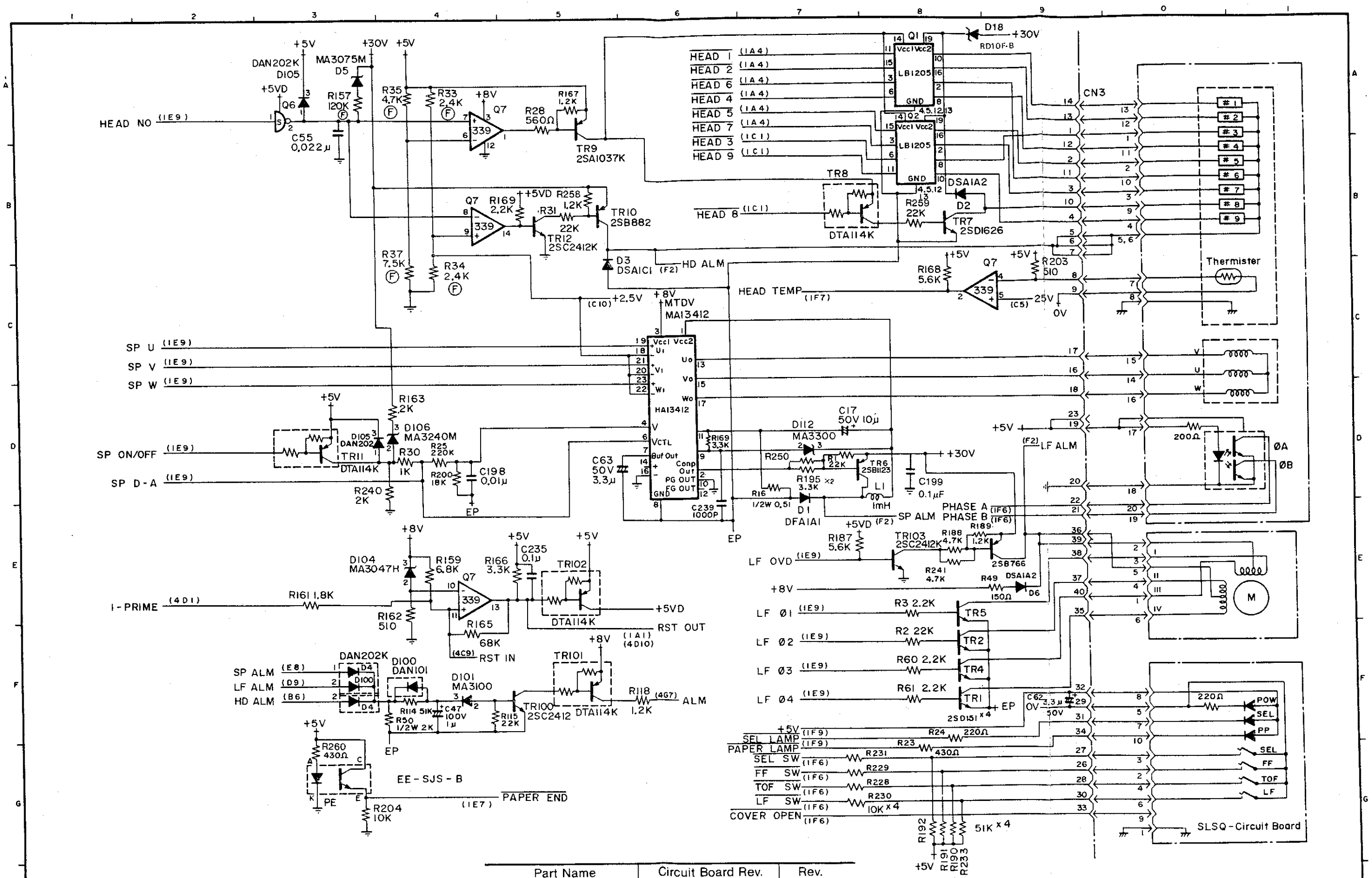
182/3 CSF COMPATIBLE




Q8 (ROM) shows when 27128 is mounted.

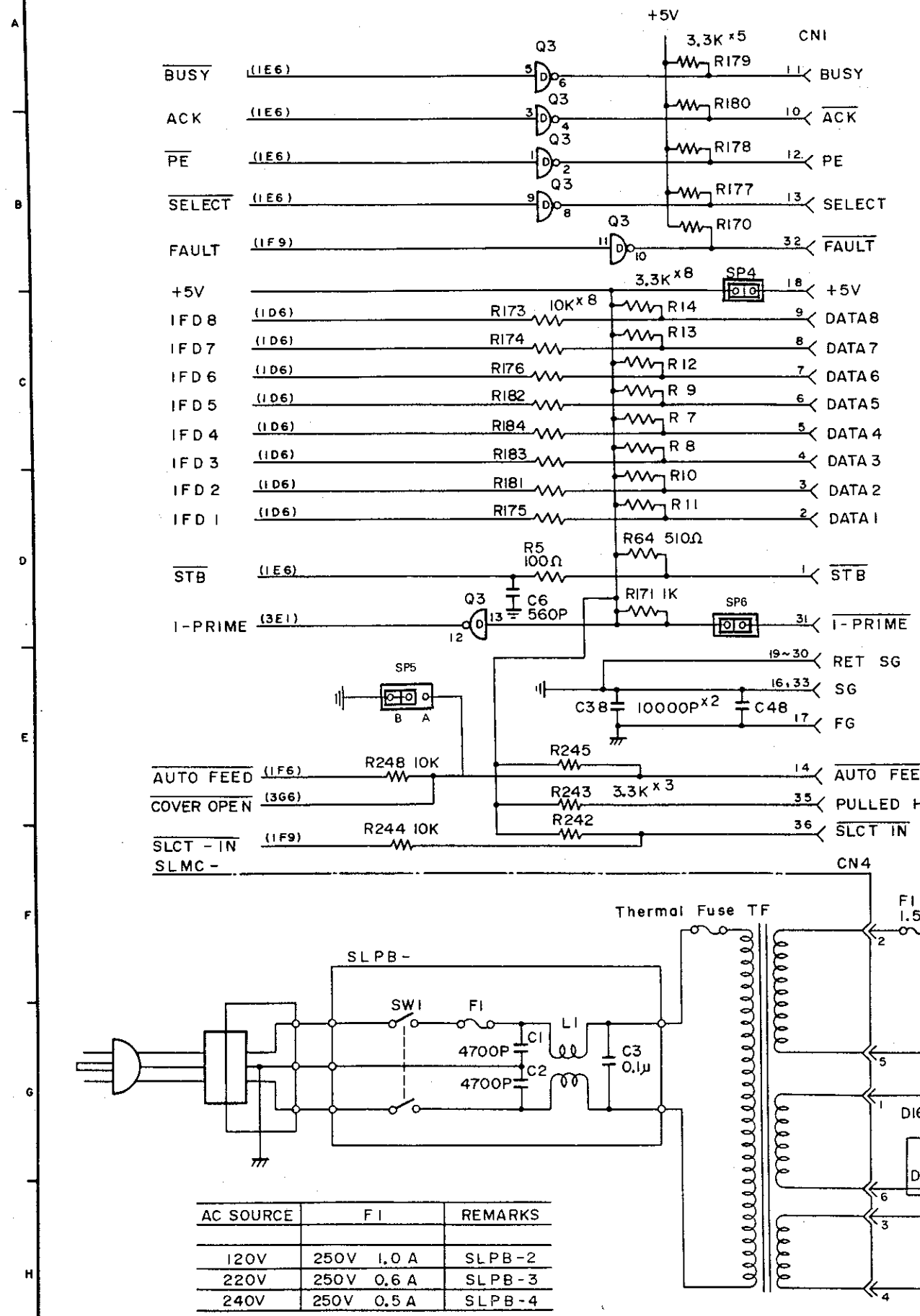
| Part Name | Circuit Board Rev. | Rev. |
|---|---|---|
| SLMC-6 Circuit Board | 15 | 15 |
| SLSQ Circuit Board | 3 | 3 |
| SLPB Circuit Board | 4 | 4 |

**Circuit Diagram (2/4)**

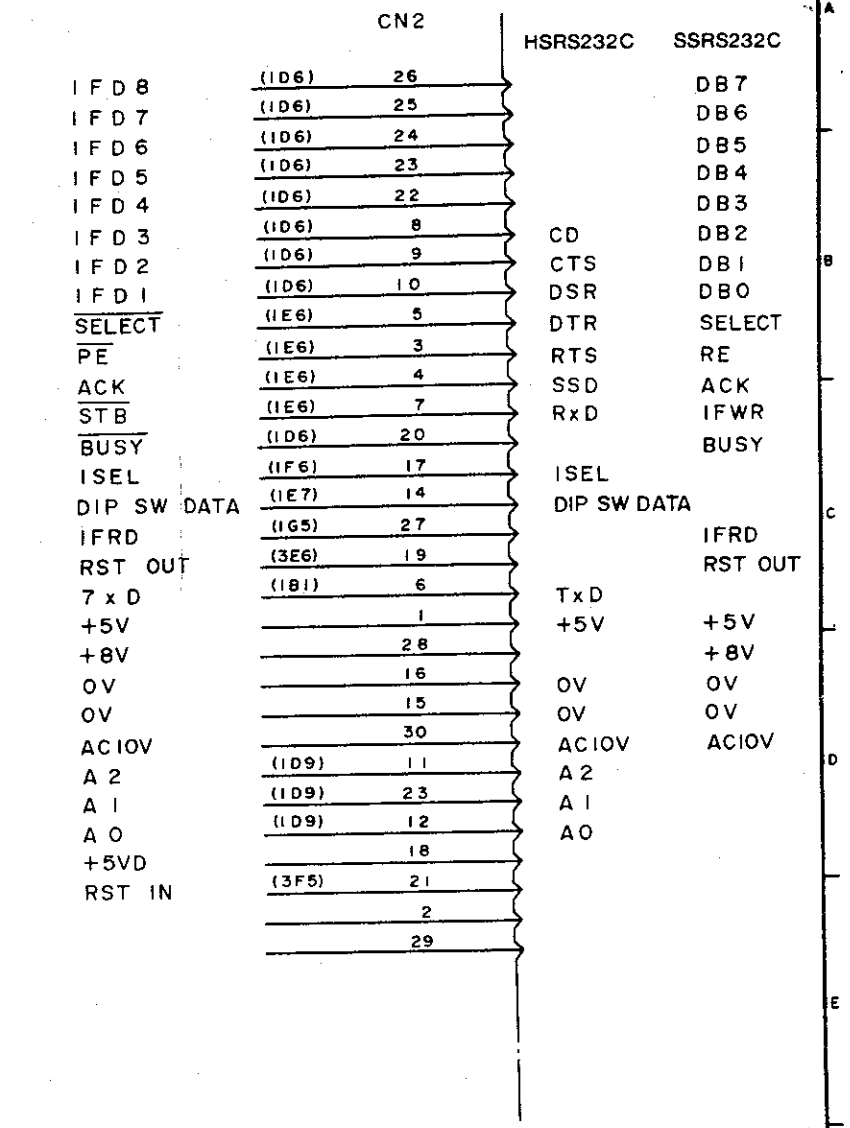


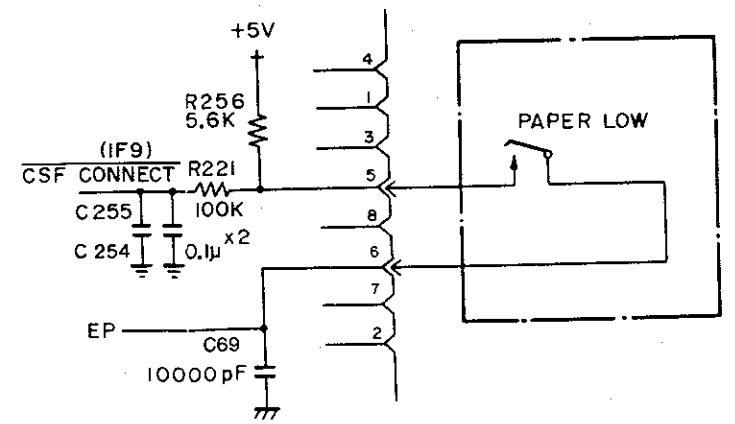

| Part Name | Circuit Board Rev. | Rev. |
|---|---|---|
| SLMC-6 Circuit Board | 15 | 15 |
| SLSQ Circuit Board | 3 | 3 |
| SLPB Circuit Board | 4 | 4 |

**Circuit Diagram (3/4)**




| AC SOURCE | F1 | REMARKS |
|---|---|---|
| 120V | 250V 1.0 A | SLPB-2 |
| 220V | 250V 0.6 A | SLPB-3 |
| 240V | 250V 0.5 A | SLPB-4 |

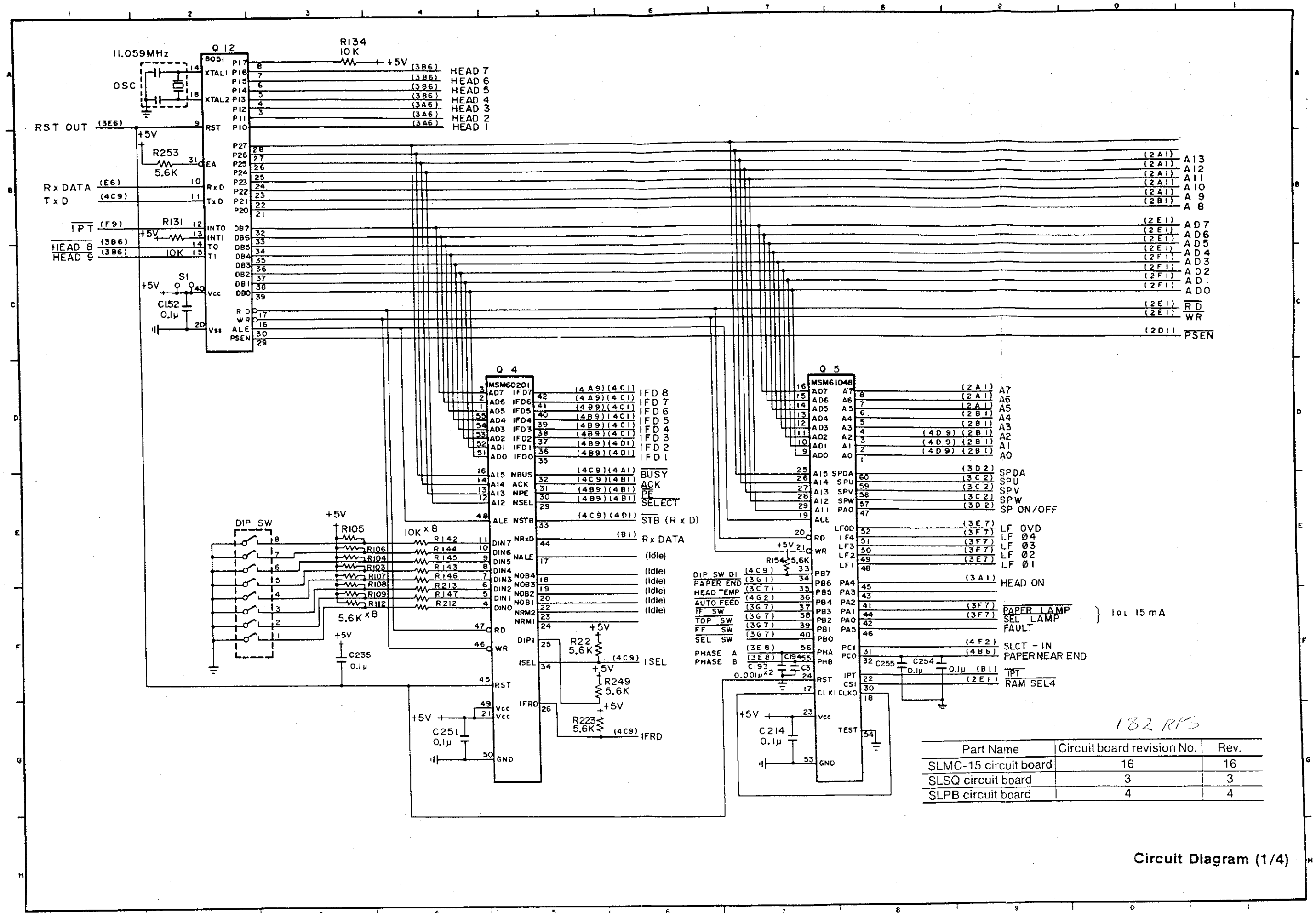

CN2
HSRS232C SSRS232C
IFD8 (1D6) 26 DB7
IFD7 (1D6) 25 DB6
IFD6 (1D6) 24 DB5
IFD5 (1D6) 23 DB4
IFD4 (1D6) 22 DB3
IFD3 (1D6) 8 CD DB2
IFD2 (1D6) 9 CTS DB1
IFD1 (1D6) 10 DSR DB0
SELECT (1E6) 5 DTR SELECT
PE (1E6) 3 RTS RE
ACK (1E6) 4 SSD ACK
STB (1E6) 7 RxD IFWR
BUSY (1D6) 20 BUSY
ISEL (1F6) 17 ISEL
DIP SW DATA (1E7) 14 DIP SW DATA
IFRD (1G5) 27 IFRD
RST OUT (3E6) 19 RST OUT
7 x D (1B1) 6 TxD
+5V 1 +5V +5V
+8V 28 +8V
0V 16 0V 0V
0V 15 0V 0V
ACIOV 30 ACIOV ACIOV
A2 (1D9) 11 A2
A1 (1D9) 23 A1
A0 (1D9) 12 A0
+5VD 18
RST IN (3F5) 21
2
29




| Part Name | Circuit Board Rev. | Rev. |
|---|---|---|
| SLMC-6 Circuit Board | 15 | 15 |
| SLSQ Circuit Board | 3 | 3 |
| SLPB Circuit Board | 4 | 4 |

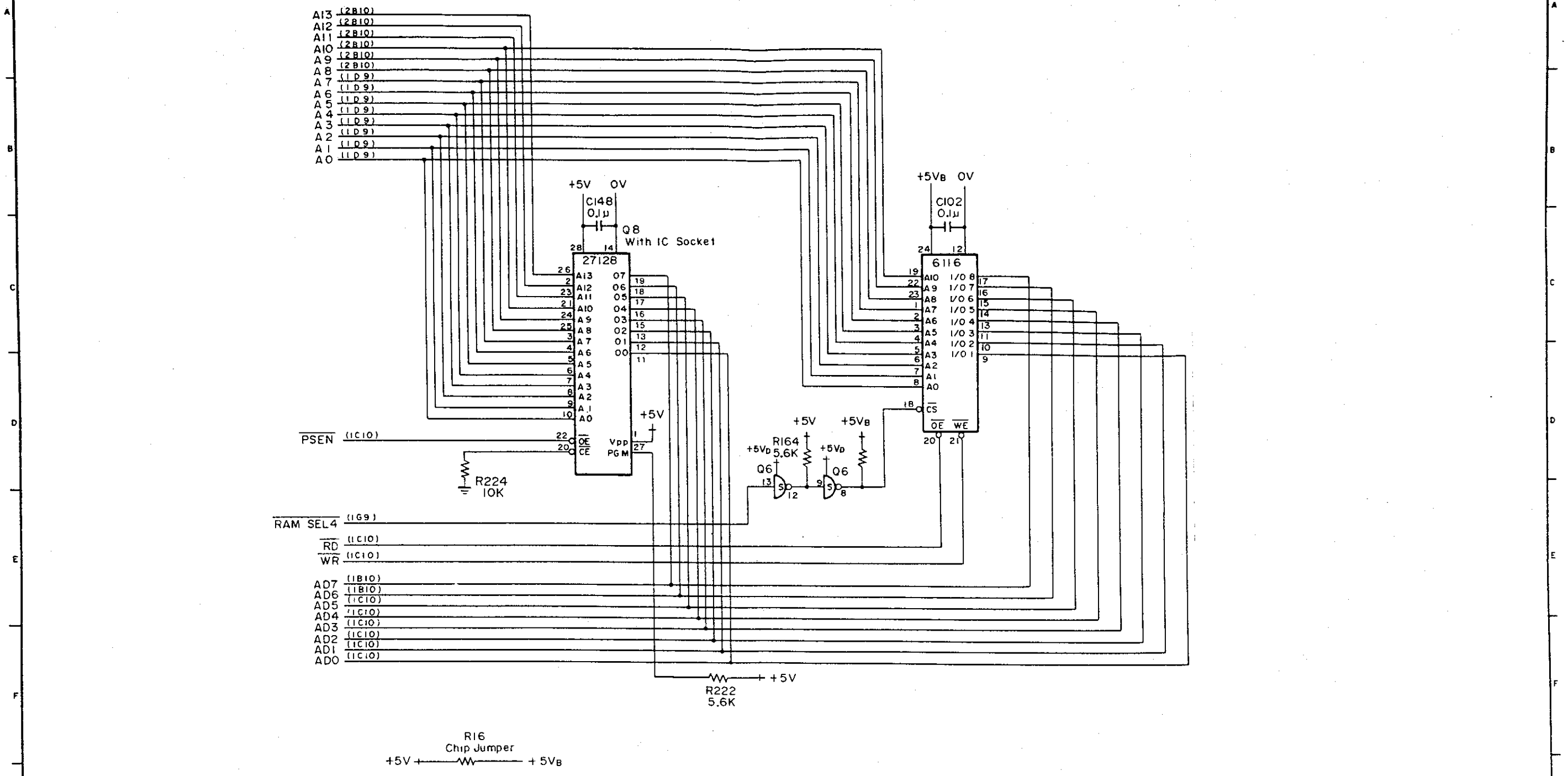
182/3 CSF COMPATIBLE.

**Circuit Diagram (4/4)**




| Part Name | Circuit board revision No. | Rev. |
|---|---|---|
| SLMC-15 circuit board | 16 | 16 |
| SLSQ circuit board | 3 | 3 |
| SLPB circuit board | 4 | 4 |

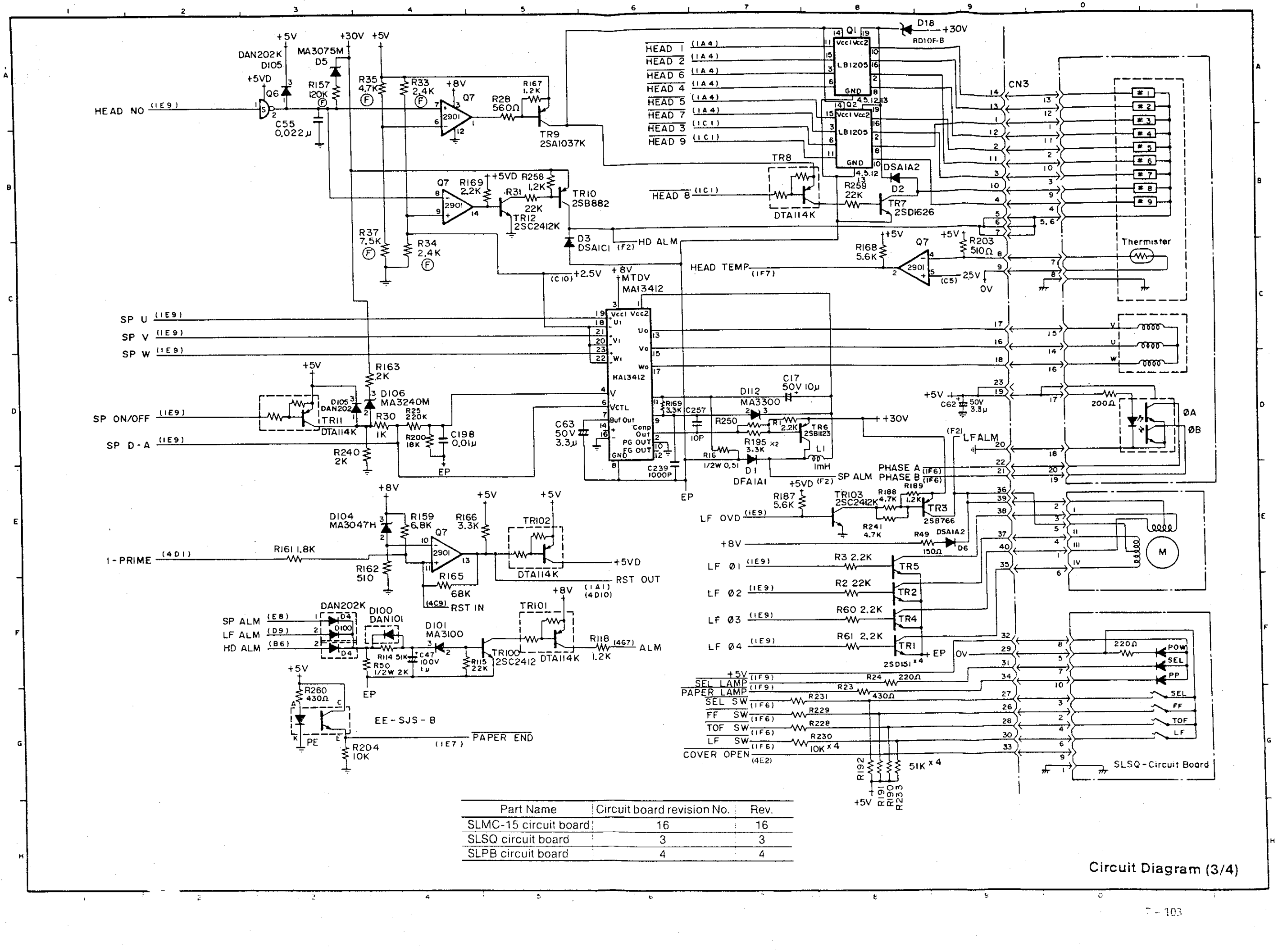
**Circuit Diagram (1/4)**




Q8 (ROM) shows when 27128 is mounted.

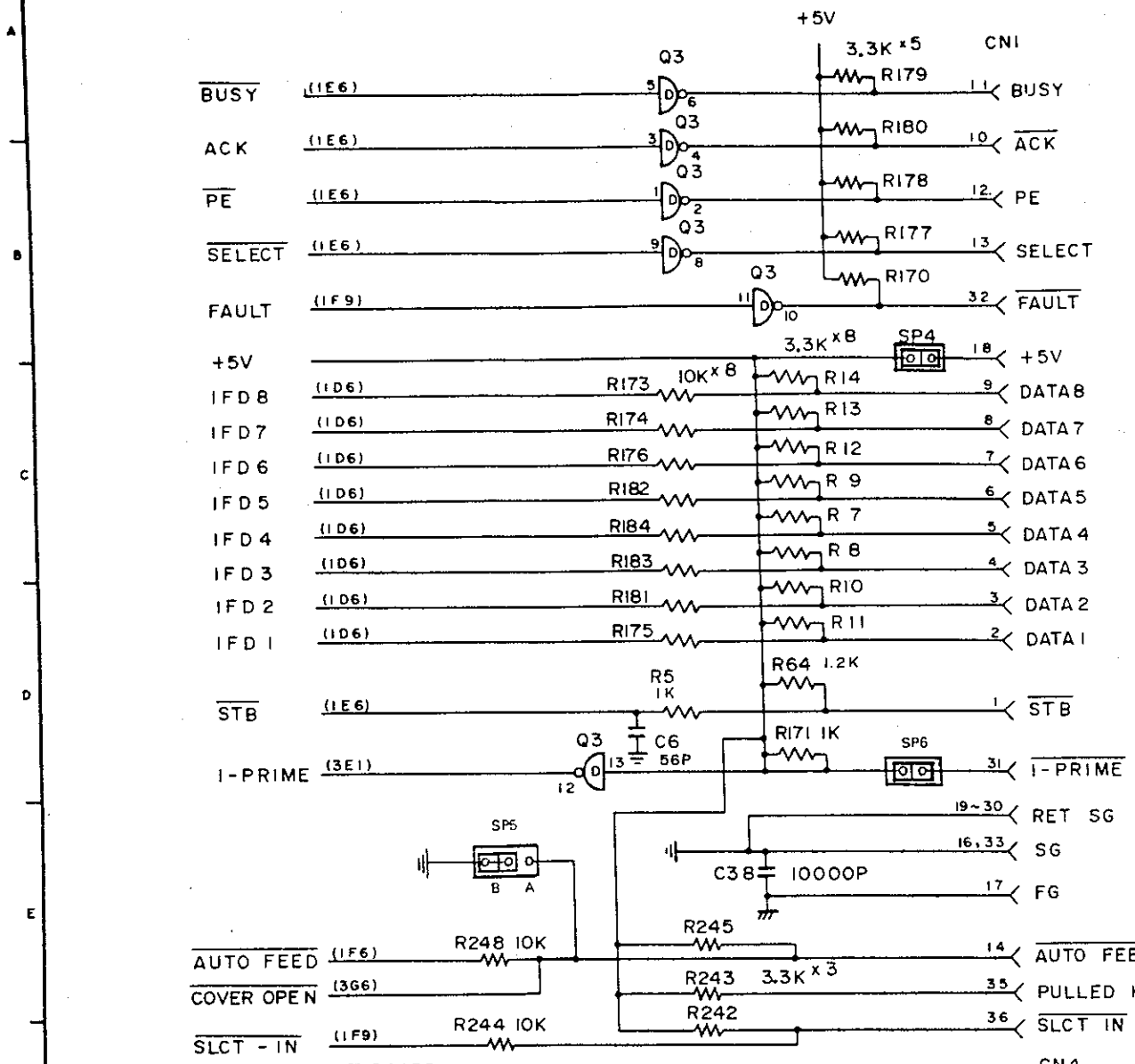
| Part Name | Circuit board revision No. | Rev. |
|---|---|---|
| SLMC-15 circuit board | 16 | 16 |
| SLSQ circuit board | 3 | 3 |
| SLPB circuit board | 4 | 4 |

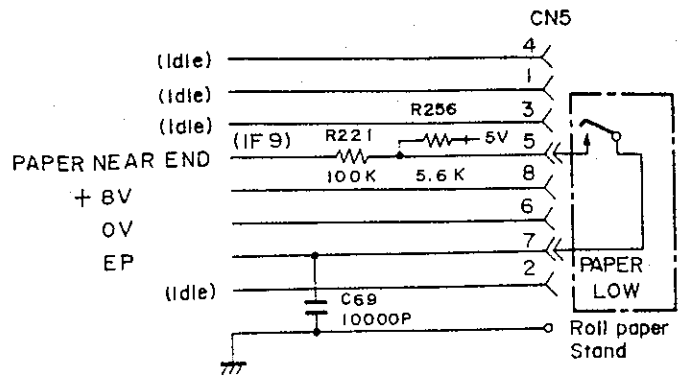
**Circuit Diagram (2/4)**

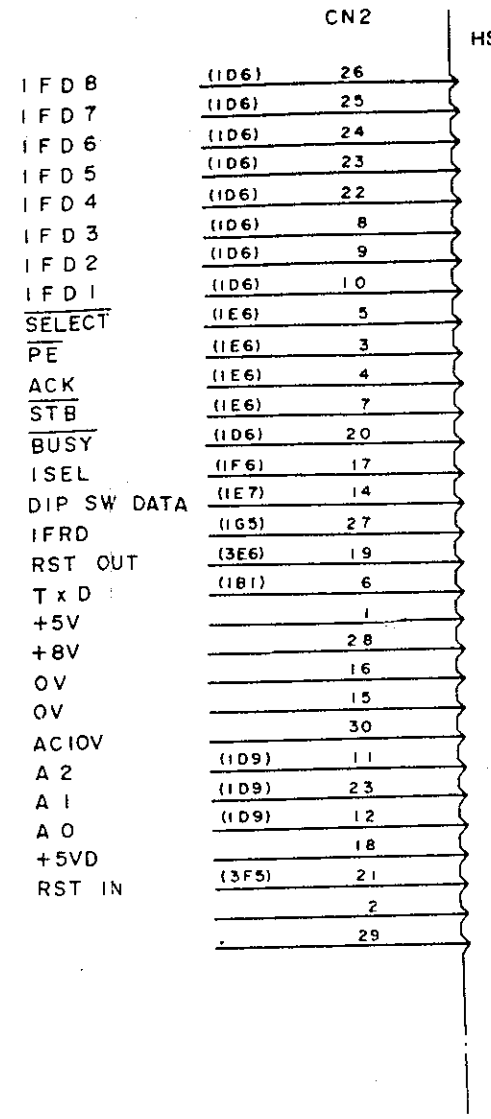



| Part Name | Circuit board revision No. | Rev. |
|---|---|---|
| SLMC-15 circuit board | 16 | 16 |
| SLSQ circuit board | 3 | 3 |
| SLPB circuit board | 4 | 4 |

Circuit Diagram (3/4)



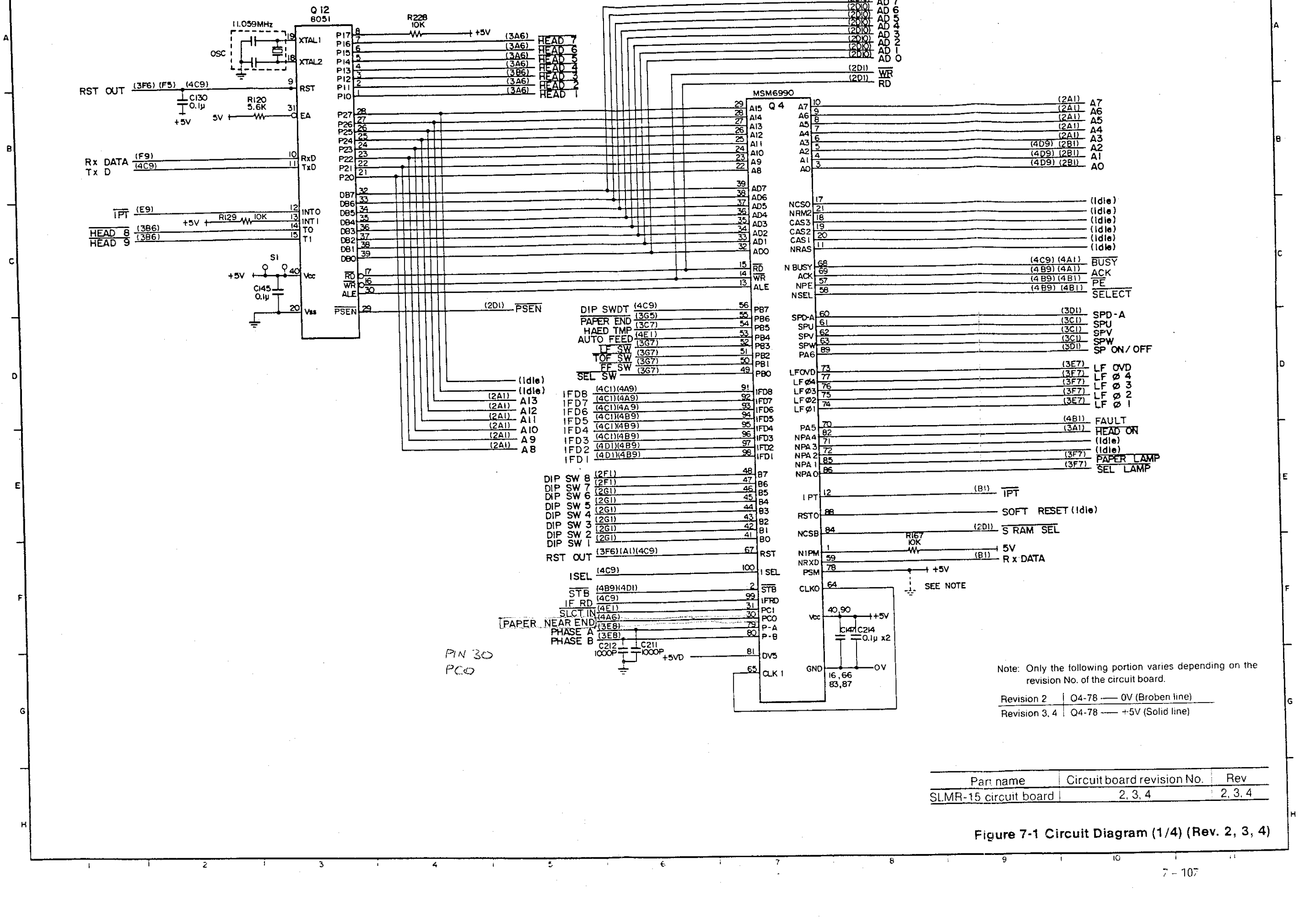




| AC SOURCE | F1 | REMARKS |
|---|---|---|
| 120V | 250V 1.0A | SLPB-2 |
| 220V | 250V 0.6A | SLPB-3 |
| 240V | 250V 0.5A | SLPB-4 |

132 RPS

| Part Name | Circuit board revision No. | Rev. |
|---|---|---|
| SLMC-15 circuit board | 16 | 16 |
| SLSQ circuit board | 3 | 3 |
| SLPB circuit board | 4 | 4 |

**Circuit Diagram (4/4)**

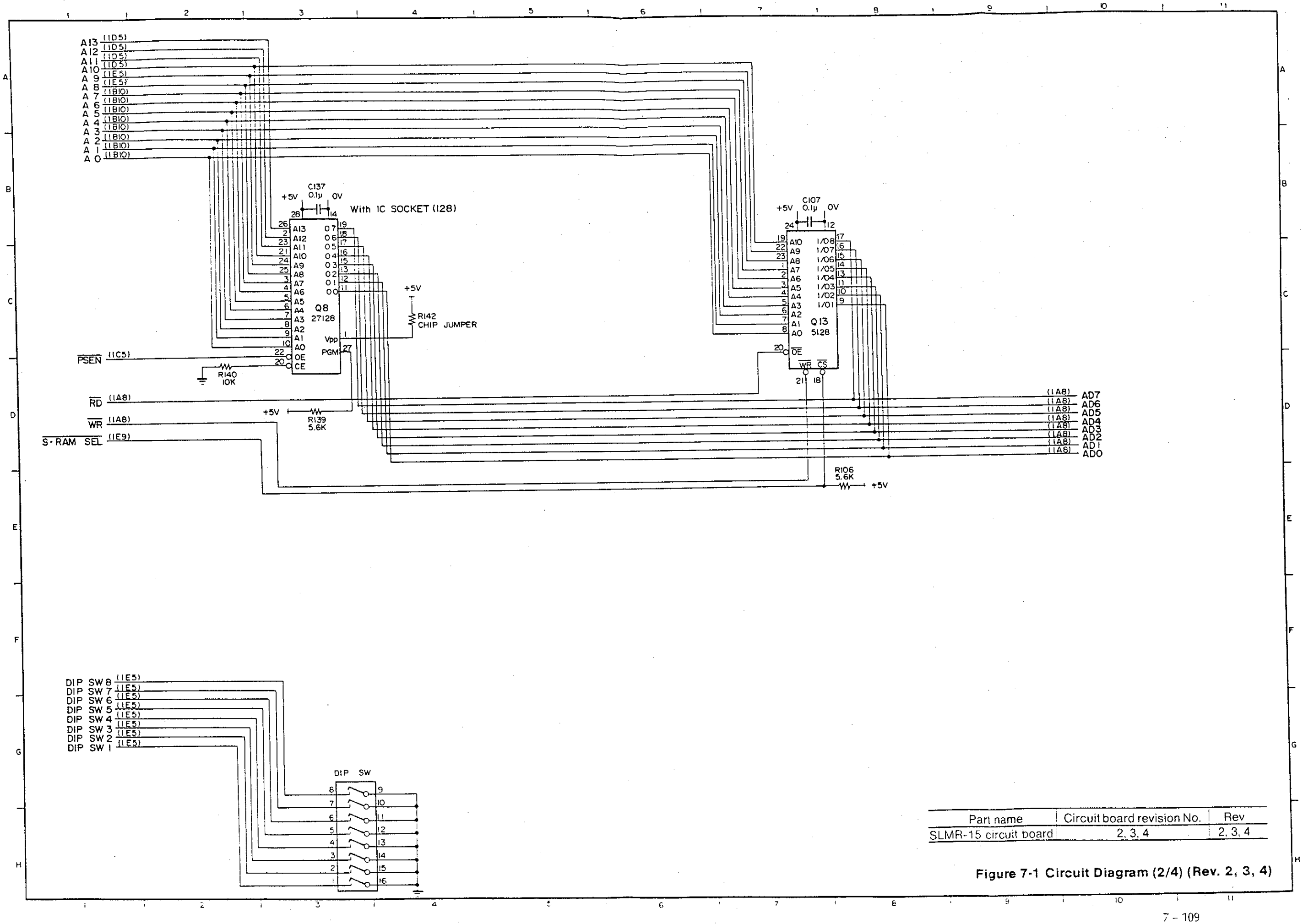



Note: Only the following portion varies depending on the revision No. of the circuit board.

| | |
|---|---|
| Revision 2 | Q4-78 —— 0V (Broben line) |
| Revision 3, 4 | Q4-78 —— +5V (Solid line) |

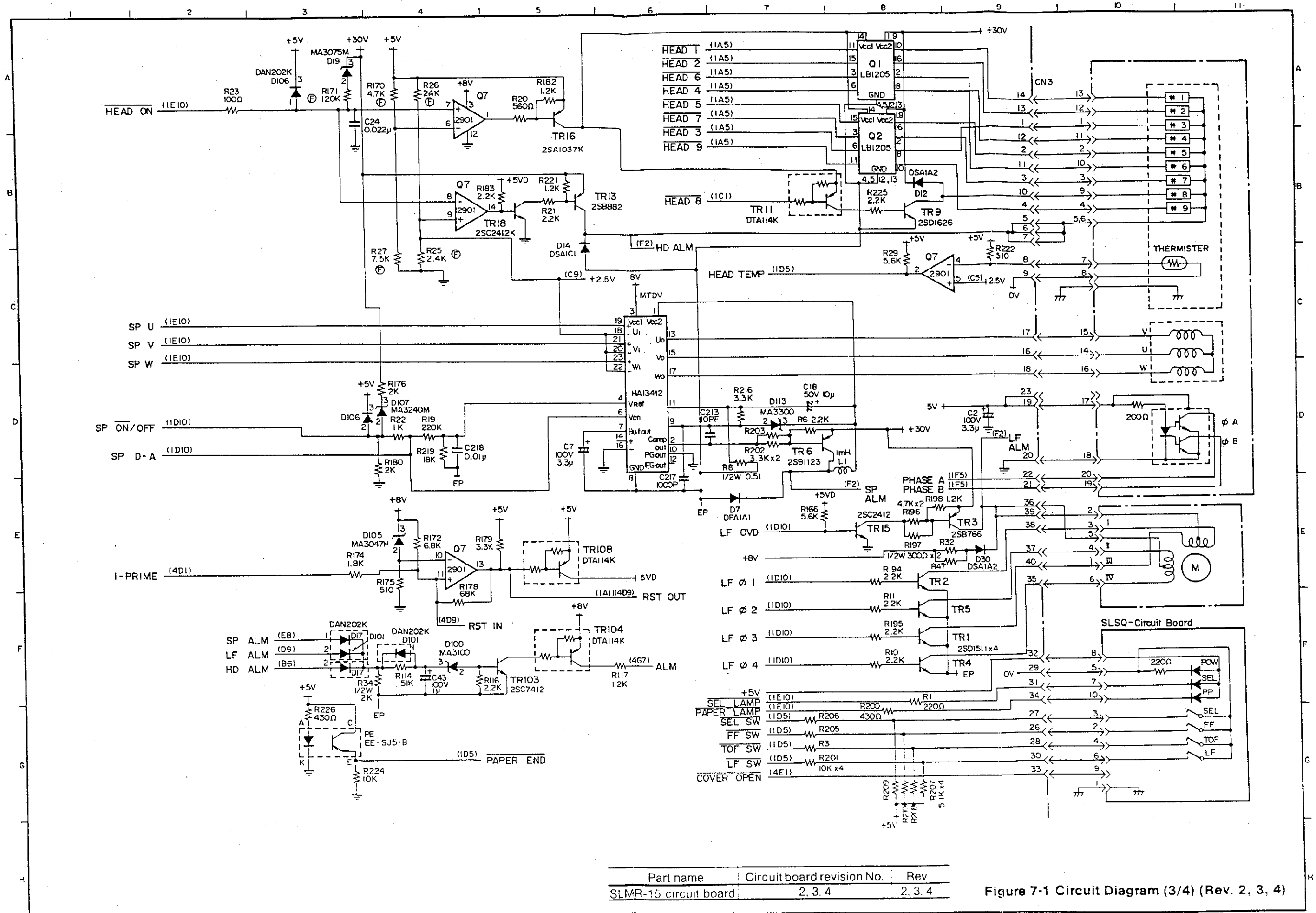
| Part name | Circuit board revision No. | Rev |
|---|---|---|
| SLMR-15 circuit board | 2, 3, 4 | 2, 3, 4 |

**Figure 7-1 Circuit Diagram (1/4) (Rev. 2, 3, 4)**



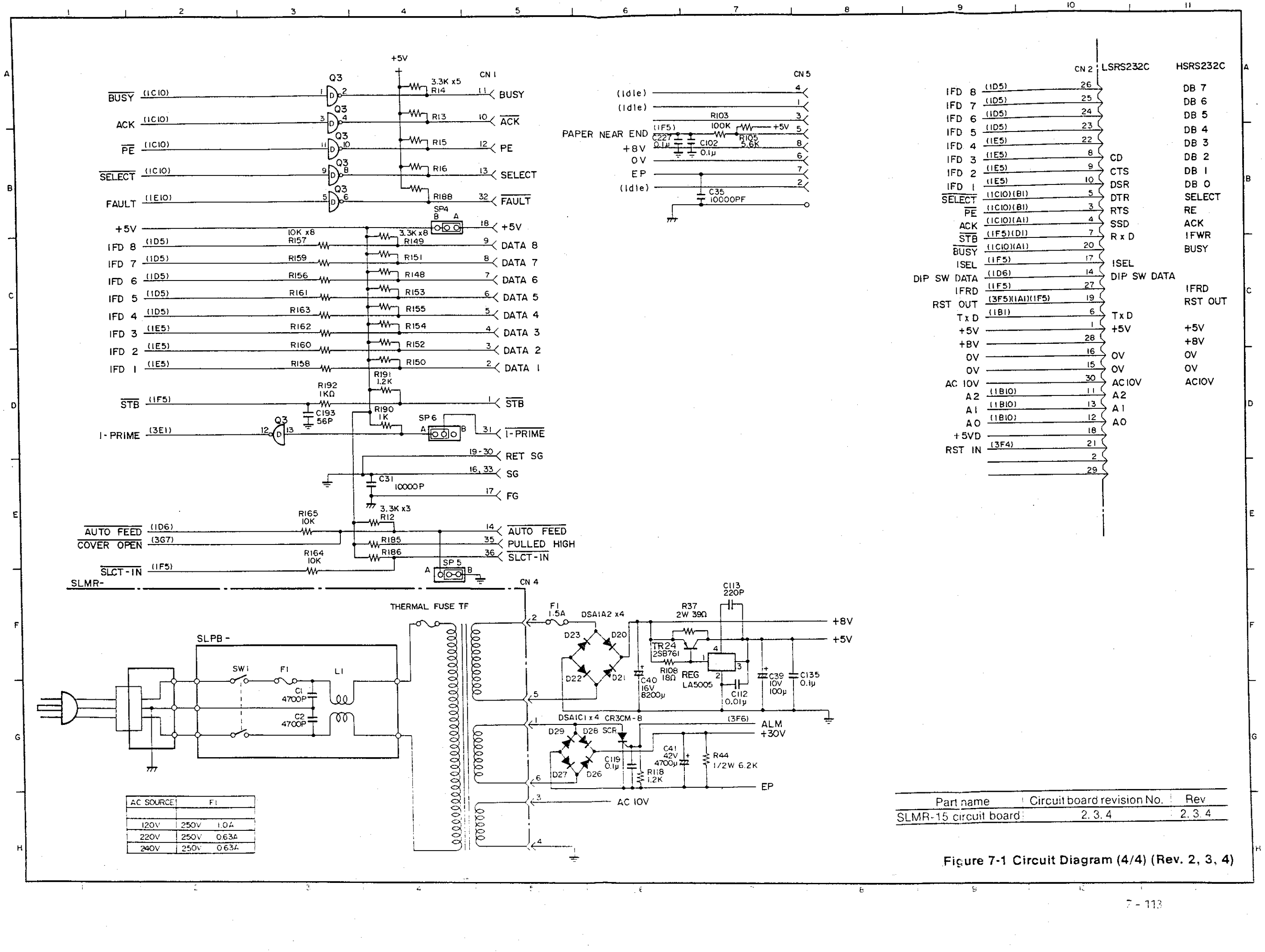

| Part name | Circuit board revision No. | Rev |
|---|---|---|
| SLMR-15 circuit board | 2, 3, 4 | 2, 3, 4 |

**Figure 7-1 Circuit Diagram (2/4) (Rev. 2, 3, 4)**




| Part name | Circuit board revision No. | Rev |
|---|---|---|
| SLMR-15 circuit board | 2, 3, 4 | 2, 3, 4 |

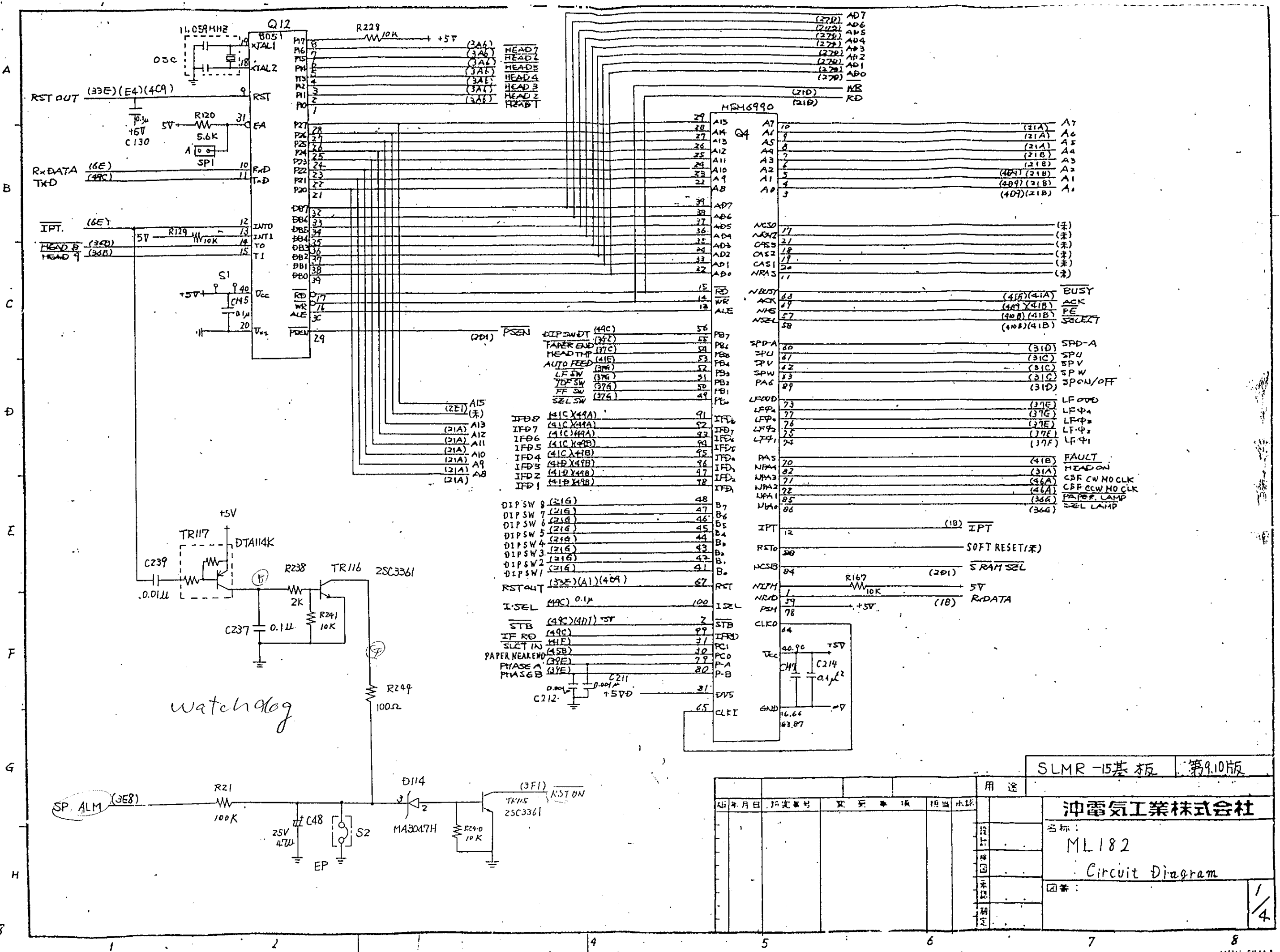
**Figure 7-1 Circuit Diagram (3/4) (Rev. 2, 3, 4)**




| AC SOURCE | F1 | |
|---|---|---|
| 120V | 250V | 1.0A |
| 220V | 250V | 0.63A |
| 240V | 250V | 0.63A |

| Part name | Circuit board revision No. | Rev |
|---|---|---|
| SLMR-15 circuit board | 2, 3, 4 | 2, 3, 4 |

**Figure 7-1 Circuit Diagram (4/4) (Rev. 2, 3, 4)**




| | | | | | | |
|---|---|---|---|---|---|---|
| 版 | 年月日 | 設定番号 | 変更事項 | 担当 | 承認 | 用途 |
| | | | | | | |

SLMR-15基板 第9.10版

沖電気工業株式会社

名称: ML182 Circuit Diagram

図番: 1/4

7-98

A13 (13D)
A12 (13D)
A11 (13D)
A10 (13D)
A9 (13D)
A8 (13D)
A7 (17B)
A6 (17B)
A5 (17B)
A4 (17B)
A3 (17B)
A2 (17B)
A1 (17B)
A0 (17B)

C137 +5V 0.1μ 0V
IC ソケット付 (128)
Q8
27128
R140 10K
PSEN (1C3)
+5V
R142 チップジャンパー

C107 +5V 0.1μ 0V
Q13
5128
OE WR CS

RD (1A6)
WR (1A5)
S-RAM SEL (1E6)
+5V R139 5.6K

(16A) AD7
(16A) AD6
(16A) AD5
(16A) AD4
(16A) AD3
(16A) AD2
(16A) AD1
(16A) AD0

R106 5.6K +5V

SP3
A15 (1D3)
R236 チップジャンパー

DIP SW 8 (1AE)
DIP SW 7 (1A5)
DIP SW 6 (1AE)
DIP SW 5 (1A5)
DIP SW 4 (1A5)
DIP SW 3 (1AE)
DIP SW 2 (1AE)
DIP SW 1 (1A5)
DIP SW

| 版 | 年月日 | 設変番号 | 変更事項 | 担当 | 承認 |
|---|---|---|---|---|---|

用途 SLMR-15 ㈱9.10版

沖電気工業株式会社

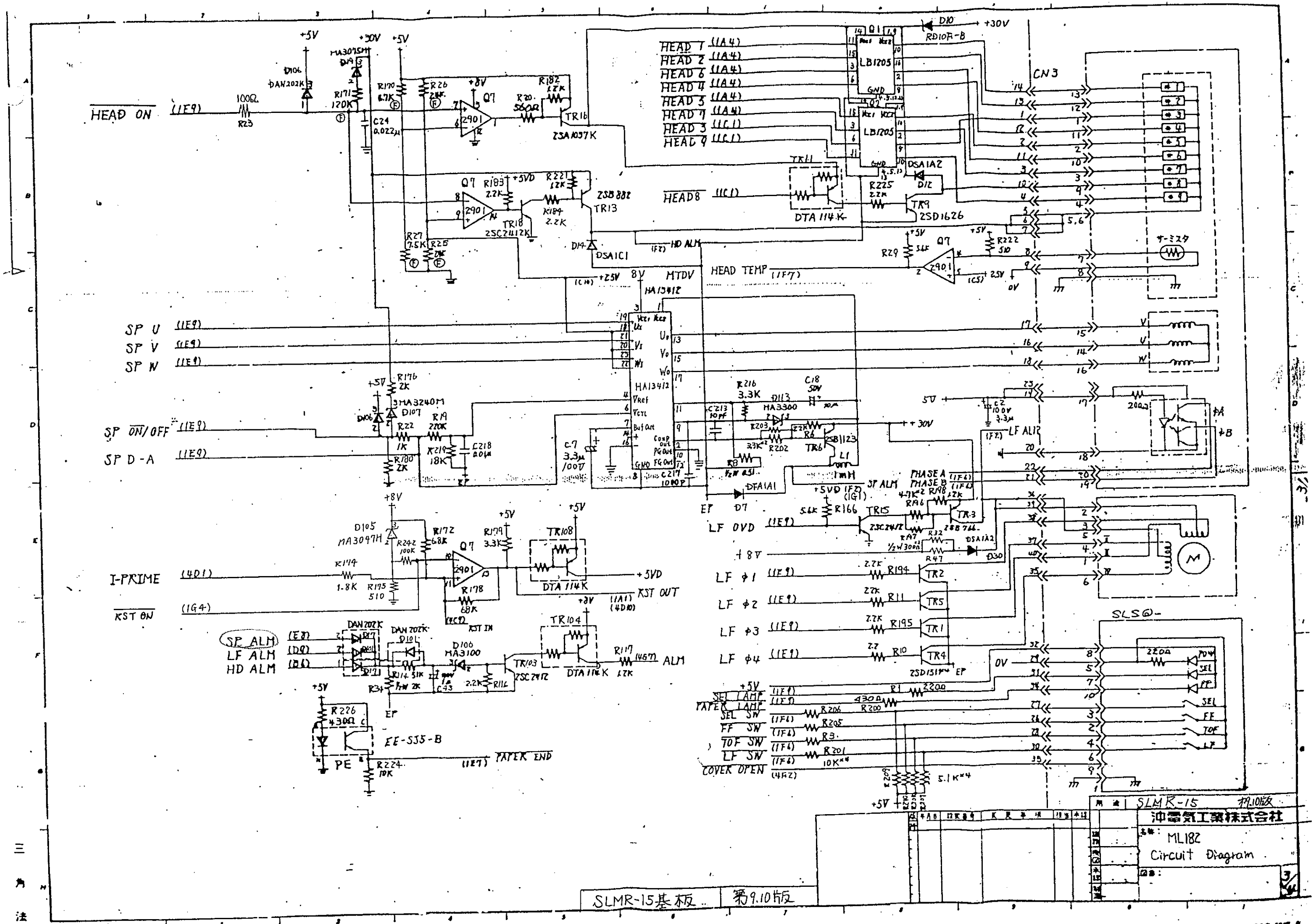
名称：
ML182
Circuit Diagram

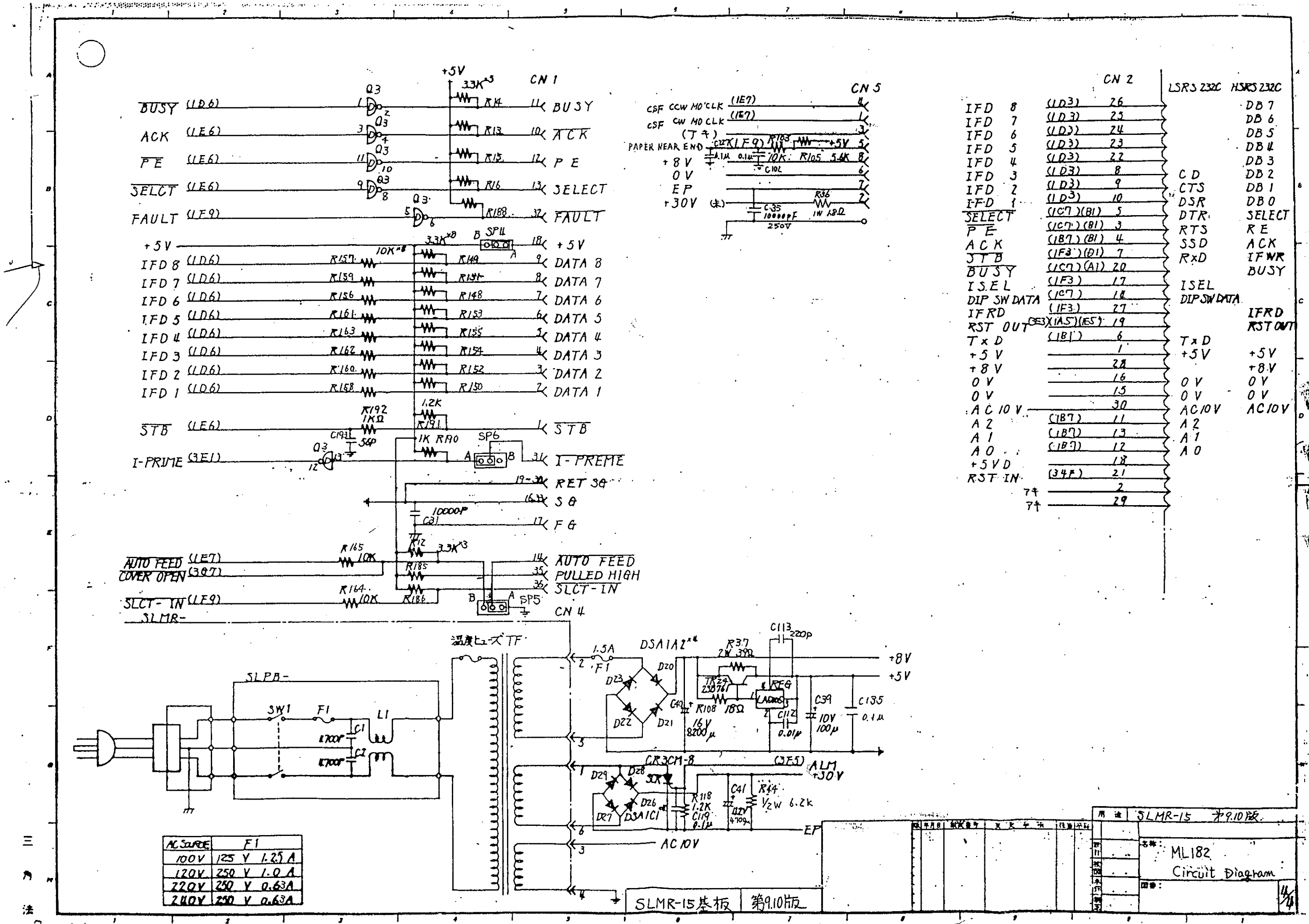
図番：

設計 作図 承認 制定

2/4

OBS-5234A


HEAD ON
SP U
SP V
SP W
SP ON/OFF
SP D-A
I-PRIME
RST ON
SP ALM
LF ALM
HD ALM
PE
EE-S35-B
PAPER END
HEAD 1
HEAD 2
HEAD 6
HEAD 4
HEAD 5
HEAD 7
HEAD 3
HEAD 9
HEAD8
HEAD TEMP
RST OUT
SP ALM
LF OVD
LF φ1
LF φ2
LF φ3
LF φ4
SEL LAMP
PAPER LAMP
SEL SW
FF SW
TOF SW
LF SW
COVER OPEN
CN3
SLS6-
SLMR-15
ML182
Circuit Diagram
SLMR-15基板
第9.10版
沖電気工業株式会社


CN 1
+5V
3.3K×5
BUSY (LD6) 1 Q3 2 R14 11 BUSY
ACK (LE6) 3 Q3 4 R13 10 ACK
PE (LE6) 11 Q3 10 R15 12 PE
SELECT (LE6) 9 Q3 8 R16 13 SELECT
FAULT (LF9) 5 Q3 6 R188 32 FAULT
+5V 10K×8 3.3K×8 B SP11 A 18 +5V
IFD 8 (LD6) R157 R149 9 DATA 8
IFD 7 (LD6) R159 R147 8 DATA 7
IFD 6 (LD6) R156 R148 7 DATA 6
IFD 5 (LD6) R161 R153 6 DATA 5
IFD 4 (LD6) R163 R155 5 DATA 4
IFD 3 (LD6) R162 R154 4 DATA 3
IFD 2 (LD6) R160 R152 3 DATA 2
IFD 1 (LD6) R158 R150 2 DATA 1
R192 1KΩ 1.2K R191
STB (LE6) C193 56P 1K RA0 SP6 1 STB
I-PRIME (3E1) Q3 13 12 A B 34 I-PRIME
19-30 RET 30
16,33 S G
C31 100000P 17 F G
R112 3.3K×3
AUTO FEED (LE7) R165 10K 14 AUTO FEED
COVER OPEN (3B7) R185 35 PULLED HIGH
SLCT-IN (LE9) R164 10K R186 B A SP5 36 SLCT-IN
SLMR- CN 4
CN 5
CSF CCW MO CLK (1E7) 4
CSF CW MO CLK (1E7) 1
(丁ヲ) 3
PAPER NEAR END C127 (LF9) R183 +5V 5
+8V 0.1μ 0.1μ 10K R105 5.4K 8
0V C102 6
EP 7
+30V (主) C35 10000pF 250V R36 1W 1.8Ω 2
CN 2
LSRS 232C HSRS 232C
IFD 8 (LD3) 26 DB 7
IFD 7 (LD3) 25 DB 6
IFD 6 (LD3) 24 DB 5
IFD 5 (LD3) 23 DB 4
IFD 4 (LD3) 22 DB 3
IFD 3 (LD3) 8 CD DB 2
IFD 2 (LD3) 9 CTS DB 1
IFD 1 (LD3) 10 DSR DB 0
SELECT (1C7)(B1) 5 DTR SELECT
PE (1C7)(B1) 3 RTS RE
ACK (1B7)(B1) 4 SSD ACK
STB (1F3)(D1) 7 RxD IFWR
BUSY (1C7)(A1) 20 BUSY
ISEL (1F3) 17 ISEL
DIP SW DATA (1C7) 18 DIP SW DATA
IFRD (1F3) 27 IFRD
RST OUT GE3 (1A5)(1E5) 19 RST OUT
TxD (1B1) 6 TxD
+5V 1 +5V +5V
+8V 28 +8.V
0V 16 0V 0V
0V 15 0V 0V
AC 10V 30 AC10V AC10V
A2 (1B7) 11 A2
A1 (1B7) 13 A1
A0 (1B7) 12 A0
+5VD 18
RST IN (34F) 21
7ヤ 2
7ヤ 29
温度ヒューズ TF
SLPB-
SW1 F1 L1
C1 4700P
C2 4700P
1.5A F1 2
DSA1A2×4 D20 D23 D22 D21 C40 16V 8200μ
R37 2W 39Ω TR29 2SB761 R108 18Ω REG AD565 C112 0.01μ C39 10V 100μ C135 0.1μ C113 220P
+8V
+5V
CR3CM-8 (3E5) ALM +30V
D29 D28 30K D26 D27 DSA1C1 R118 1.2K C119 0.1μ C41 470μ R14 1/2W 6.2k
EP
AC 10V
SLMR-15基板 第9.10版
SLMR-15 ヤ9.10版
ML182
Circuit Diagram
4/4
AC SOURCE F1
100V 125 V 1.25 A
120V 250 V 1.0 A
220V 250 V 0.63A
240V 250 V 0.63A

7-101

# 8. MAINTENANCE PARTS LIST

# 8. MAINTENANCE PARTS LIST


Printer unit ..... Figure 8-1

Printer mechanism ..... Figure 8-2

Pin tractor assembly ..... Figure 8-3

SLMC-2 Printed circuit board ..... Figure 8-4

SLPB-Printed circuit board ..... Figure 8-5

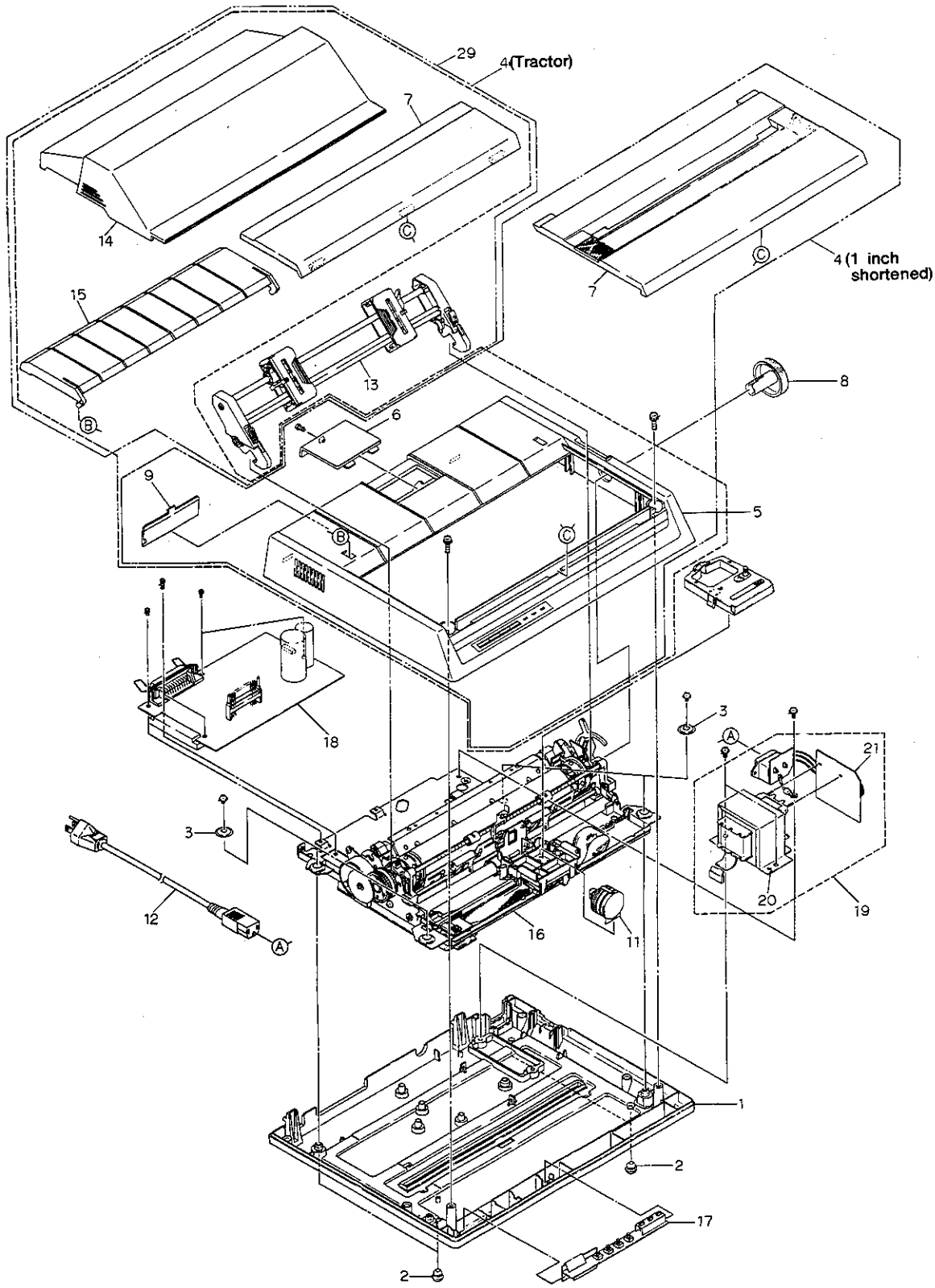



**Figure 8-1 Printer Unit**

**Figure 8-1 Printer Unit**

| Item No. | Part No. | Description | Qty | Remarks |
|---|---|---|---|---|
| 1 | 1PB4025-1121P1 | Lower cover | 1 | ML182 |
| 1 | 1PB4025-1221P1 | Lower cover | 1 | ML183 |
| 2 | 4PB4025-1137P1 | Rubber foot | 4 | * (NOTE) |
| 3 | 4PP4025-1152P1 | Washer | 4 | * |
| 4 | 3PA4025-1141G1 | Upper cover assembly (1 inch shortened) | 1 | ML182 |
| 4 | 3PA4025-1226G1 | Upper cover assembly (tractor) | 1 | ML183 |
| 5 | 3PP4025-1143G1 | Upper cover | 1 | ML182 |
| 5 | 3PP4025-1227G1 | Upper cover | 1 | ML183 |
| 6 | 4PB4025-1123P1 | DIP switch access cover | 1 | * |
| 7 | 3PA4025-1126G1 | Access cover | 1 | ML182 |
| 7 | 2PB4025-1186P1 | Access cover (tractor) | 1 | ML182 option |
| 7 | 2PB4025-1187P1 | Access cover (tractor) | 1 | ML183 |
| 8 | 4PB4025-1134P1 | Platen knob | 1 | * |
| 9 | 4PB4025-1124P1 | Connector cover | 1 | * |
| 11 | 4YA4025-1401G1 | Print head | 1 | * |
| 12 | 3YS4011-1051P1 | AC cord | 1 | 240 V |
| 12 | 3YS4011-1052P1 | AC cord | 1 | 220 V |
| 13 | 3PA4025-1311G1 | Pin tractor assembly | 1 | ML182 option |
| 13 | 3PA4025-1311G2 | Pin tractor assembly | 1 | ML183 |
| 14 | 2PB4025-1130P1 | Tractor cover | 1 | ML182 option |
| 14 | 2PB4025-1130P2 | Tractor cover | 1 | ML183 |
| 15 | 2PB4025-1188P1 | Paper separator | 1 | ML182 option |
| 15 | 2PB4025-1189P1 | Paper separator | 1 | ML183 |
| 16 | 3YX4025-1010G1 | Printer mechanism | 1 | ML182 |
| 16 | 3YX4025-1201G1 | Printer mechanism | 1 | ML183 |
| 17 | 4YA4021-1007G1 | SLSQ printed-circuit board | 1 | * |
| 18 | 4YA4042-1001G012 | SLMC-2 printed circuit board STD-I/F with EP ROM | 1 | ML182 |
| 18 | 4YA4042-1001G013 | SLMC-2 printed circuit board IBM-I/F with EP ROM | 1 | ML182 |
| 18 | 4YA4042-1001G017 | SLMC-2 printed circuit board for maintenance without ROM | 1 | * |
| 18 | 4YA4042-1001G101 | SLMC-2 printed circuit board STD-I/F with masked ROM | 1 | ML182 |
| 18 | 4YA4042-1001G102 | SLMC-2 printed circuit board IBM-I/F with masked ROM | 1 | ML182 |
| 18 | 4YA4042-1001G103 | SLMC-5 printed circuit board COMMODORE-I/F with EP ROM | 1 | ML182 |
| 18 | 4YA4042-1001G104 | SLMC-6 printed circuit board TTY-I/F with EP ROM | 1 | ML182 |

***Note:*** *Parts indicated by * are common to both ML182 and ML183*

**Figure 8-1 (con.)**

| Item No. | Part No. | Description | Qty | Remarks |
|---|---|---|---|---|
| 18 | 4YA4042-1001G042 | SLMC-2 printed circuit board STD-I/F with EP ROM | 1 | ML183 |
| 18 | 4YA4042-1001G043 | SLMC-2 printed circuit board IBM-I/F with EP ROM | 1 | ML183 |
| 19 | 3YX4021-1012G1 | AC transformer assembly | 1 | ML182 (120 V) |
| 19 | 3YX4021-1013G1 | AC transformer assembly | 1 | ML182 (220 V) |
| 19 | 3YX4021-1014G1 | AC transformer assembly | 1 | ML182 (240 V) |
| 19 | 3YX4021-1012G2 | AC transformer assembly | 1 | ML183 (120 V) |
| 19 | 3YX4021-1013G2 | AC transformer assembly | 1 | ML183 (220 V) |
| 19 | 3YX4021-1014G2 | AC transformer assembly | 1 | ML183 (240 V) |
| 20 | 3LP-45474-1 | Transformer | 1 | ML182 (120 V) |
| 20 | 3LP-45475-1 | Transformer | 1 | ML182 (220 V) |
| 20 | 3LP-45483-1 | Transformer | 1 | ML182 (240 V) |
| 20 | 3LP-45474-2 | Transformer | 1 | ML183 (120 V) |
| 20 | 3LP-45475-2 | Transformer | 1 | ML183 (220 V) |
| 20 | 3LP-45483-2 | Transformer | 1 | ML183 (240 V) |
| 21 | 3YU5003-5611G2 | SLPB-2 printed-circuit board | 1 | 120 V |
| 21 | 3YU5003-5611G3 | SLPB-3 printed-circuit board | 1 | 220 V |
| 21 | 3YU5003-5611G4 | SLPB-4 printed-circuit board | 1 | 240 V |
| 29 | 4YA4025-1709G1 | Pin tractor OPTION KIT | 1 | Option |

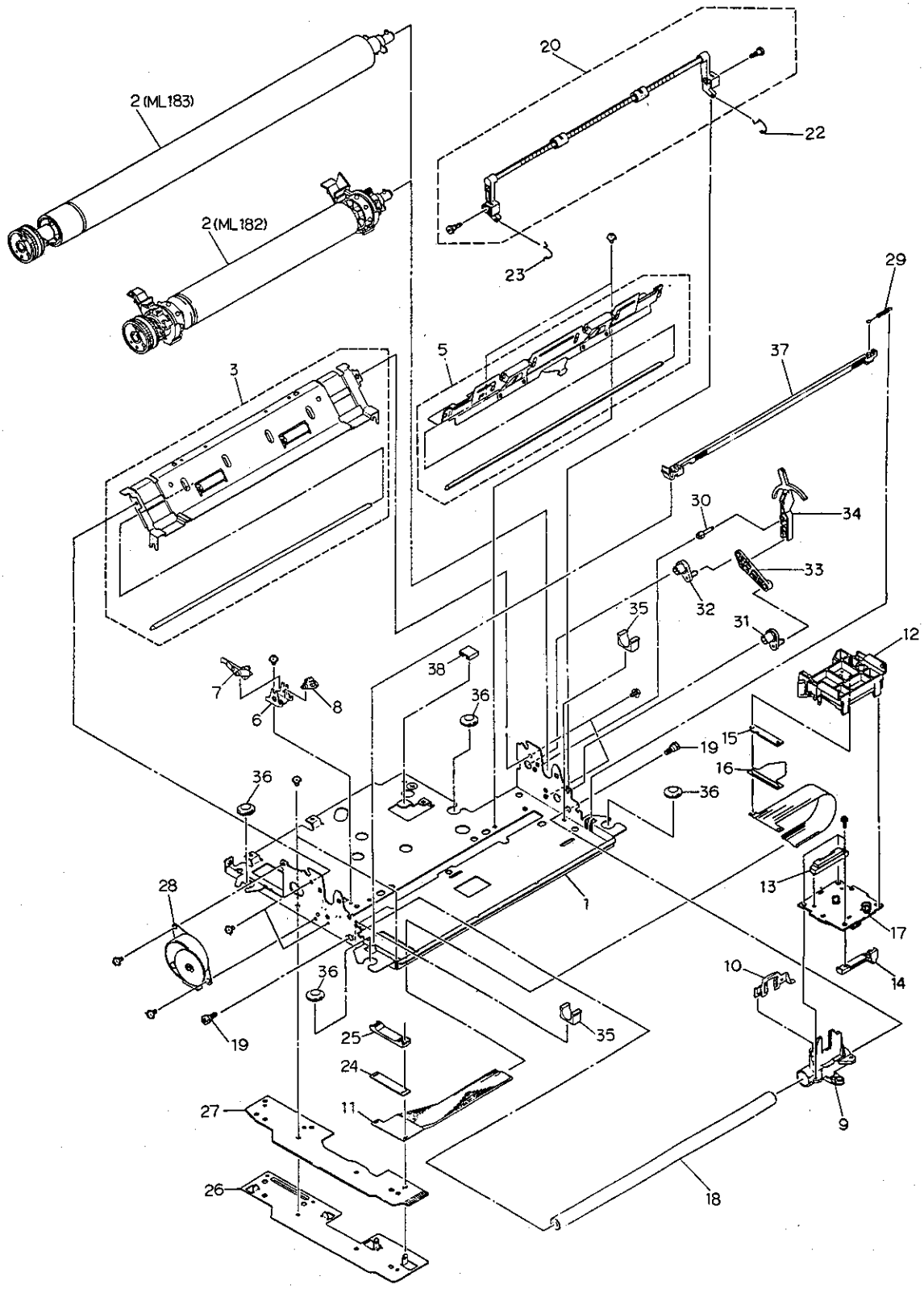



**Figure 8-2 Printer Mechanism**

**Figure 8-2 Printer Mechanism**

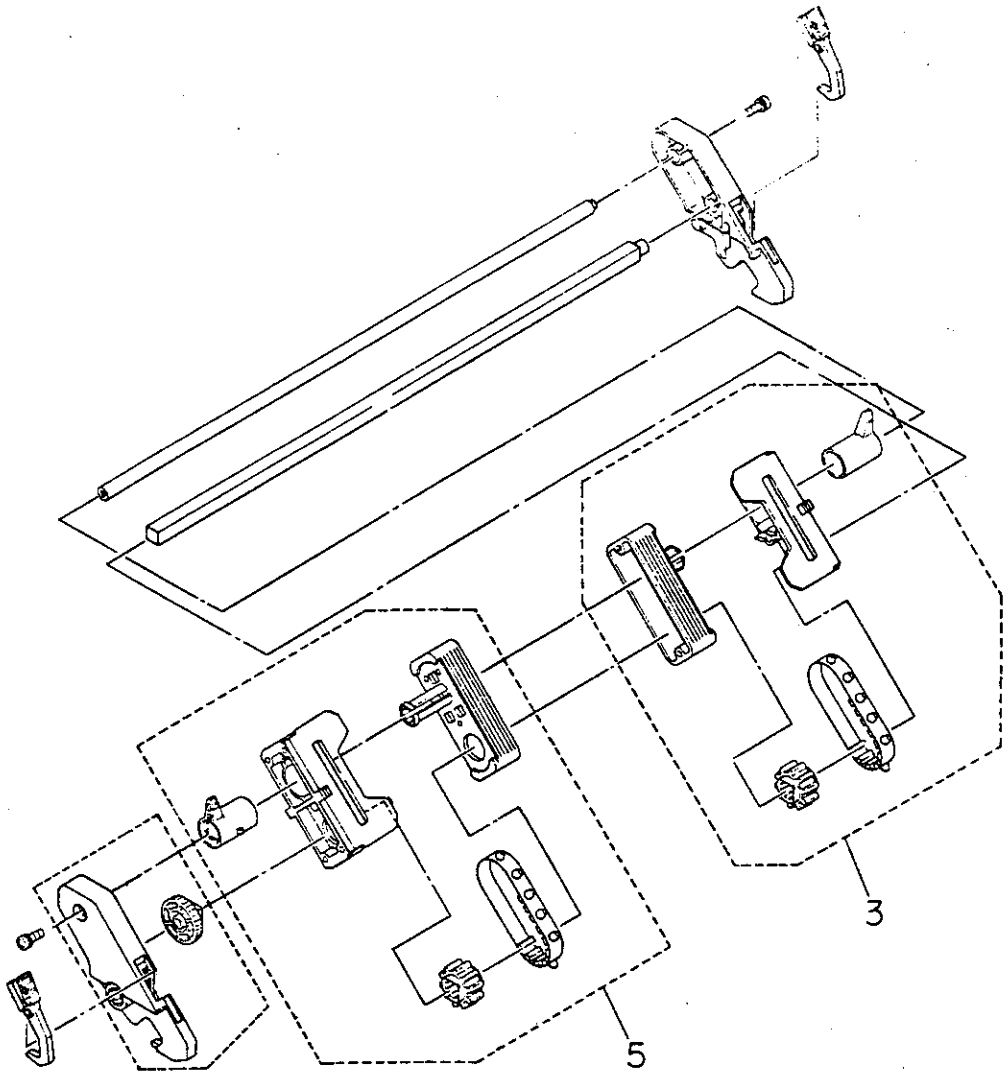
| Item No. | Part No. | Description | Qty | Remarks |
|---|---|---|---|---|
| 1 | 1PP4025-1011P1 | Base frame | 1 | ML182 |
| 1 | 1PP4025-1202P1 | Base frame | 1 | ML183 |
| 2 | 4PA4025-1012G1 | Platen assembly | 1 | ML182 |
| 2 | 4PA4025-1203G1 | Platen assembly | 1 | ML183 |
| 3 | 3PA4025-1027G1 | Paper chute assembly | 1 | ML182 |
| 3 | 3PA4025-1205G1 | Paper chute assembly | 1 | ML183 |
| 5 | 3PA4025-1032G1 | Bottom paper guide assembly | 1 | ML182 |
| 5 | 3PA4025-1207G1 | Bottom paper guide assembly | 1 | ML183 |
| 6 | 4PP4025-1038P1 | Near-end bracket | 1 | * (NOTE) |
| 7 | 4PB4025-1039P1 | Near-end lever | 1 | ML182 |
| 7 | 4PB4025-1211P1 | Near-end lever | 1 | ML183 |
| 8 | 4PB4025-1040P1 | Bottom near-end lever | 1 | * |
| 9 | 4PP4025-1118G1 | Carriage roller | 1 | * |
| 10 | 4PP4025-1048P1 | Head clamp | 1 | * |
| 11 | 2PU4007-1004P1 | Carriage cable | 1 | ML182 |
| 11 | 2PU4007-1004P2 | Carriage cable | 1 | ML183 |
| 12 | 4PA4025-1075G1 | Ribbon feed gear assembly | 1 | * |
| 13 | 3PB4025-1116P1 | Connector | 1 | * |
| 14 | 4PB4025-1088P1 | Slider | 1 | * |
| 15 | 4PP4025-1114P1 | Contact pressure rubber | 1 | * |
| 16 | 4PP4025-1182P1 | Cable clamp | 1 | * |
| 17 | 4YX4025-1800G1 | Space motor assembly | 1 | * |
| 18 | 4PB4025-1089P1 | Carriage shaft | 1 | ML182 |
| 18 | 4PB4025-1089P2 | Carriage shaft | 1 | ML183 |
| 19 | 4PB4025-1090P1 | Main shaft screw | 2 | * |
| 20 | 4PA4025-1091G1 | Indicator assembly | 1 | ML182 |
| 20 | 4PA4025-1091G2 | Indicator assembly | 1 | ML183 |
| 22 | 4PB4025-1097P1 | Pressure roller spring (R) | 1 | * |
| 23 | 4PB4025-1098P1 | Pressure roller spring (L) | 1 | * |
| 24 | 4PP4025-1099P1 | Contact rubber | 1 | * |
| 25 | 4PB4025-1100P1 | Cord clamp | 1 | * |
| 26 | 3PP4025-1103P1 | Circuit support | 1 | * |
| 27 | 2PU4003-5624P1 | SLBS printed-circuit board | 1 | * |
| 28 | 4PB4025-1105P1 | LF motor | 1 | * |
| 29 | 4PB4025-1106P1 | Tension spring | 1 | * |

***Note:*** *Parts indicated by * are common to both ML182 and ML183*

**Figure 8-2 (con.)**

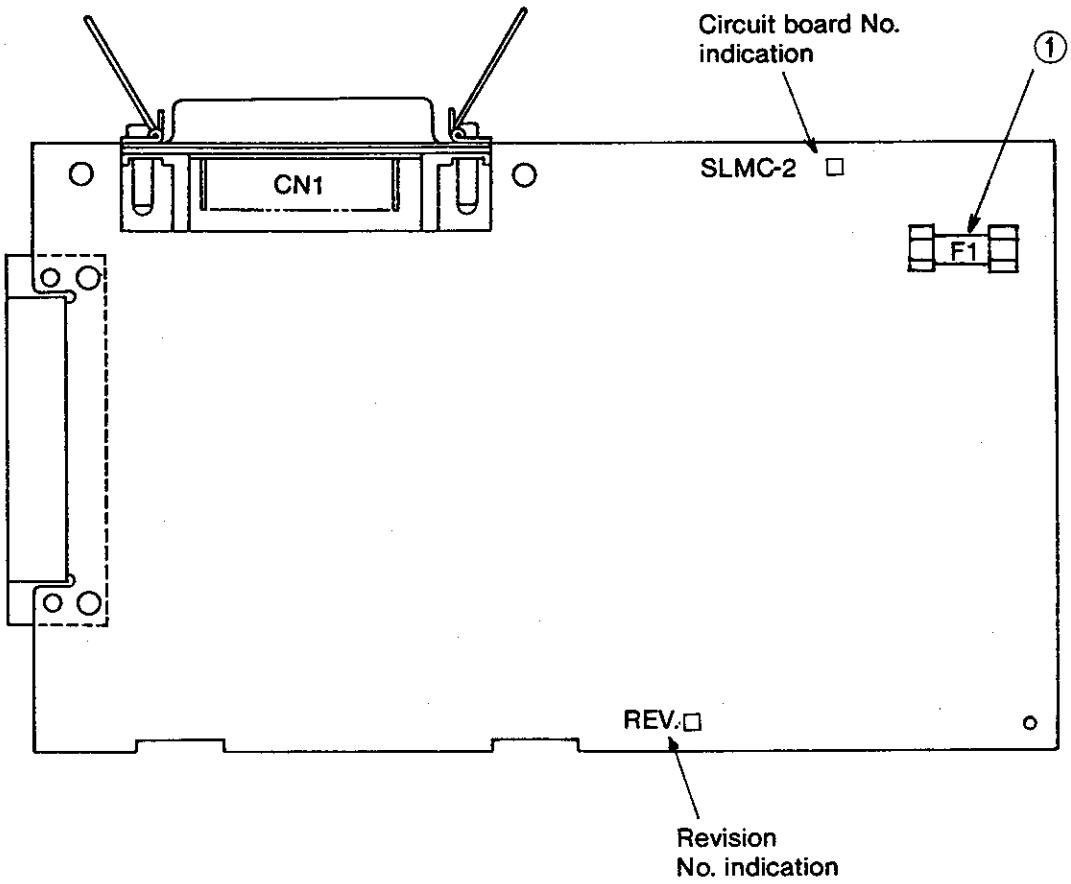
| Item No. | Part No. | Description | Qty | Remarks |
|---|---|---|---|---|
| 30 | 4PB4025-1107P1 | Release post | 1 | * (NOTE) |
| 31 | 4PB4025-1108P1 | Release link (front) | 1 | * |
| 32 | 4PB4025-1109P1 | Release link (rear) | 1 | * |
| 33 | 4PB4025-1110P1 | Release link | 1 | * |
| 34 | 4PB4025-1113P1 | Paper lock release lever | 1 | * |
| 35 | 4PB4025-1115P1 | Stopper rubber | 2 | * |
| 36 | 4PB4025-1159P1 | Grommet | 4 | * |
| 37 | 3PB4025-1049P1 | Space rack | 1 | ML182 |
| 37 | 3PB4025-1049P2 | Space rack | 1 | ML183 |
| 38 | 4PP4025-1158P1 | Radiating rubber | 1 | * |

***Note:*** *Parts indicated by * are common to both ML182 and ML183*



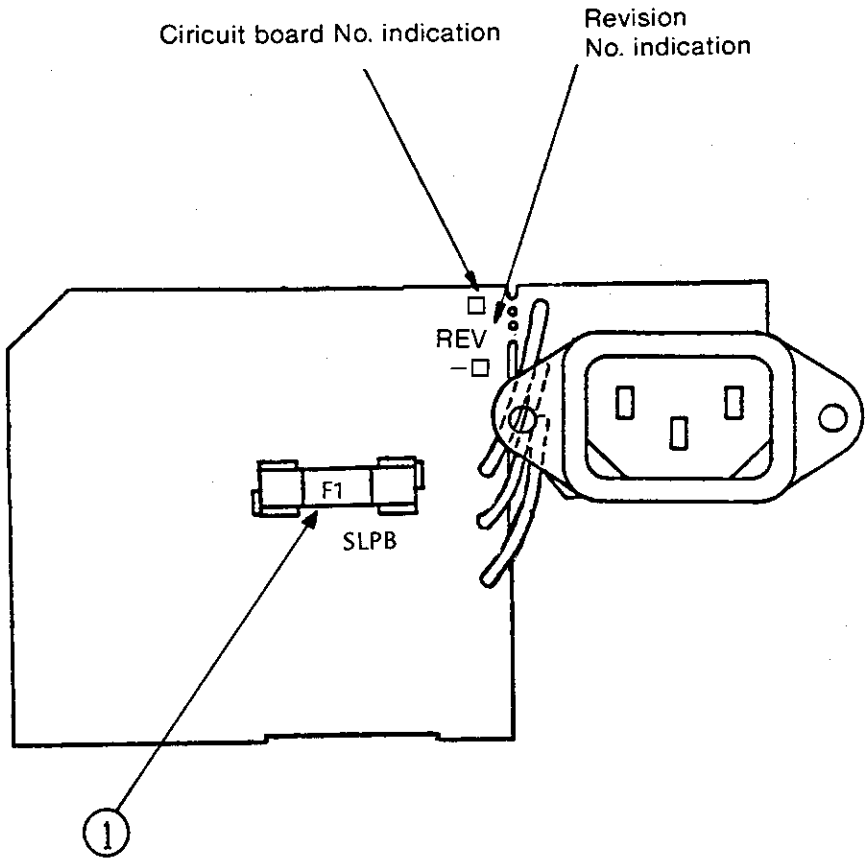

| Item No. | Part No. | Description | Qty | Remarks |
|---|---|---|---|---|
| 3 | 4PA4025-1315G1 | Pin tractor assembly (R) | 1 | (ML182 option) |
| 5 | 4PA4025-1328G1 | Pin tractor assembly (L) | 1 | (ML182 option) |

**Figure 8-3 Pin Tractor Assembly (Option)**




| Item No. | Part No. | Description | Qty | Remarks |
|---|---|---|---|---|
| 1 | 540A2036M1152 | Fuse 1.5A | 1 | |

**Figure 8-4 SLMC-2 Printed-Circuit Board**




| Item No. | Part No. | Description | Qty | Remarks |
|---|---|---|---|---|
| 1 | 540A2036M2102 | Fuse 1.0A | 1 | G2 120V |
| 1 | 540A2044S2631 | Fuse 0.63A | 1 | G3 220V |
| 1 | 540A2044S2501 | Fuse 0.5A | 1 | G4 240V |

**Figure 8-5 SLPB Printed-Circuit Board**

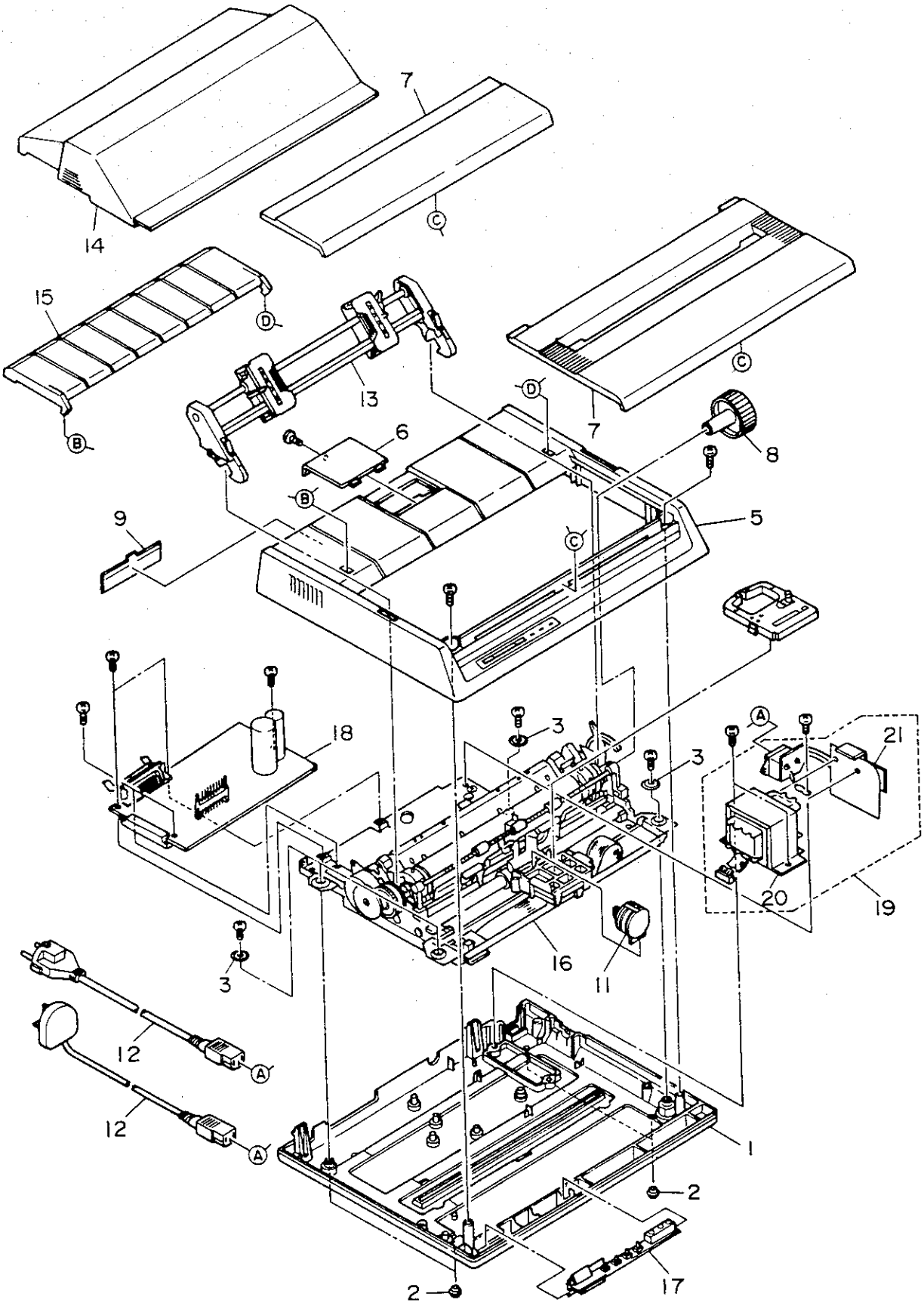



**Figure 8-1 Printer Unit**

**Figure 8-1 Printer Unit**

| Item No. | Part No. | Description | Qty | Remarks |
|---|---|---|---|---|
| 1 | 1PB4025-1121P1 | Lower cover | 1 | ML182 |
| 1 | 1PB4025-1221P1 | Lower cover | 1 | ML183 |
| 2 | 4PB4025-1137P1 | Rubber foot | 4 | *(Note) |
| 3 | 4PP4025-1152P1 | Washer | 4 | * |
| 5 | 3PP4025-1143G1 | Upper cover | 1 | ML182 |
| 5 | 3PP4025-1227G1 | Upper cover | 1 | ML183 |
| 6 | 4PB4025-1123P1 | DIP switch access cover | 1 | * |
| △7 | 3PA4017-3044G1 | Access cover | 1 | ML182 |
| △7 | 2PB4017-3048P1 | Access cover (tractor) | 1 | ML182 option |
| △7 | 2PB4017-3056P1 | Access cover (tractor) | 1 | ML183 |
| 8 | 3PB4025-2156P3 | Platen knob | 1 | * |
| 9 | 4PB4017-3046P1 | Connector cover | 1 | * |
| 11 | 4YA4025-1401G1 | Print head | 1 | * |
| 12 | 3YS4011-1051P1 | AC cord | 1 | 240 V |
| 12 | 3YS4011-1052P1 | AC cord | 1 | 220 V |
| 13 | 3PA4025-2633G1 | Pin tractor assembly | 1 | ML182 option |
| 13 | 3PA4025-2633G2 | Pin tractor assembly | 1 | ML183 |
| 14 | 2PB4025-1130P1 | Tractor cover | 1 | ML182 option |
| 14 | 2PB4025-1130P2 | Tractor cover | 1 | ML183 |
| △15 | 3PA4025-1268G1 | Paper separator | 1 | ML182 |
| △15 | 3PA4025-1269G1 | Paper separator | 1 | ML183 |
| △16 | 3YX4025-1010G2 | Printer mechanism | 1 | ML182 |
| △16 | 3YX4025-1201G2 | Printer mechanism | 1 | ML183 |
| 17 | 4YA4021-1007G1 | SLSQ printed circuit board | 1 | * |
| △18 | 4YA4042-1001G012 | SLMR-15 printed circuit board STD-I/F with EP ROM | 1 | ML182 |
| △18 | 4YA4042-1001G013 | SLMR-15 printed circuit board IBM-1/F with EP ROM | 1 | ML182 |
| △18 | 4YA4042-1001G112 | SLMR-15 printed circuit board for maintenance without ROM | 1 | * |
| △18 | 4YA4042-1001G103 | SLMR-5 printed circuit board COMMODORE—I/F with EP ROM | 1 | ML182 |
| △18 | 4YA4042-1001G104 | SLMR-6 printed circuit board TTY-I/F with EP ROM | 1 | ML182 |

***Note:*** *Parts indicated by * are common to both ML182 and ML183*

△ : Correction
△ : Changed

**Figure 8-1 (con.)**

| Item No. | Part No. | Description | Qty | Remarks |
|---|---|---|---|---|
| ⚠18 | 4YA4042-1001G042 | SLMR-15 printed circuit board STD-I/F with EP ROM | 1 | ML183 |
| ⚠18 | 4YA4042-1001G043 | SLMR-15 printed circuit board IBM-I/F with EP ROM | 1 | ML183 |
| 19 | 3YX4021-1012G1 | AC transformer assembly | 1 | ML182 (120 V) |
| 19 | 3YX4021-1032G1 | AC transformer assembly | 1 | ML182 (220 V/240 V) |
| 19 | 3YX4021-1012G2 | AC transformer assembly | 1 | ML183 (120 V) |
| ⚠19 | 3YX4021-1032G2 | AC transformer assembly | 1 | ML183 (220 V/240 V) |
| 20 | 3LP-45474-1 | Transformer | 1 | ML182 (120 V) |
| 20 | 4YB4021-1031P1 | Universal Transformer | 1 | ML182 (220 V/240 V) |
| 20 | 3LP-45474-2 | Transformer | 1 | ML183 (120 V) |
| 20 | 4YB4021-1031P2 | Universal Transformer | 1 | ML183 (220 V/240 V) |
| 21 | 3YU5003-5611G2 | SLPB-2 printed-circuit board | 1 | 120 V |
| 21 | 3YU5003-5611G3 | SLPB-3 printed-circuit board | 1 | 220 V/240 V |

⚠: Correction
⚠: Changed

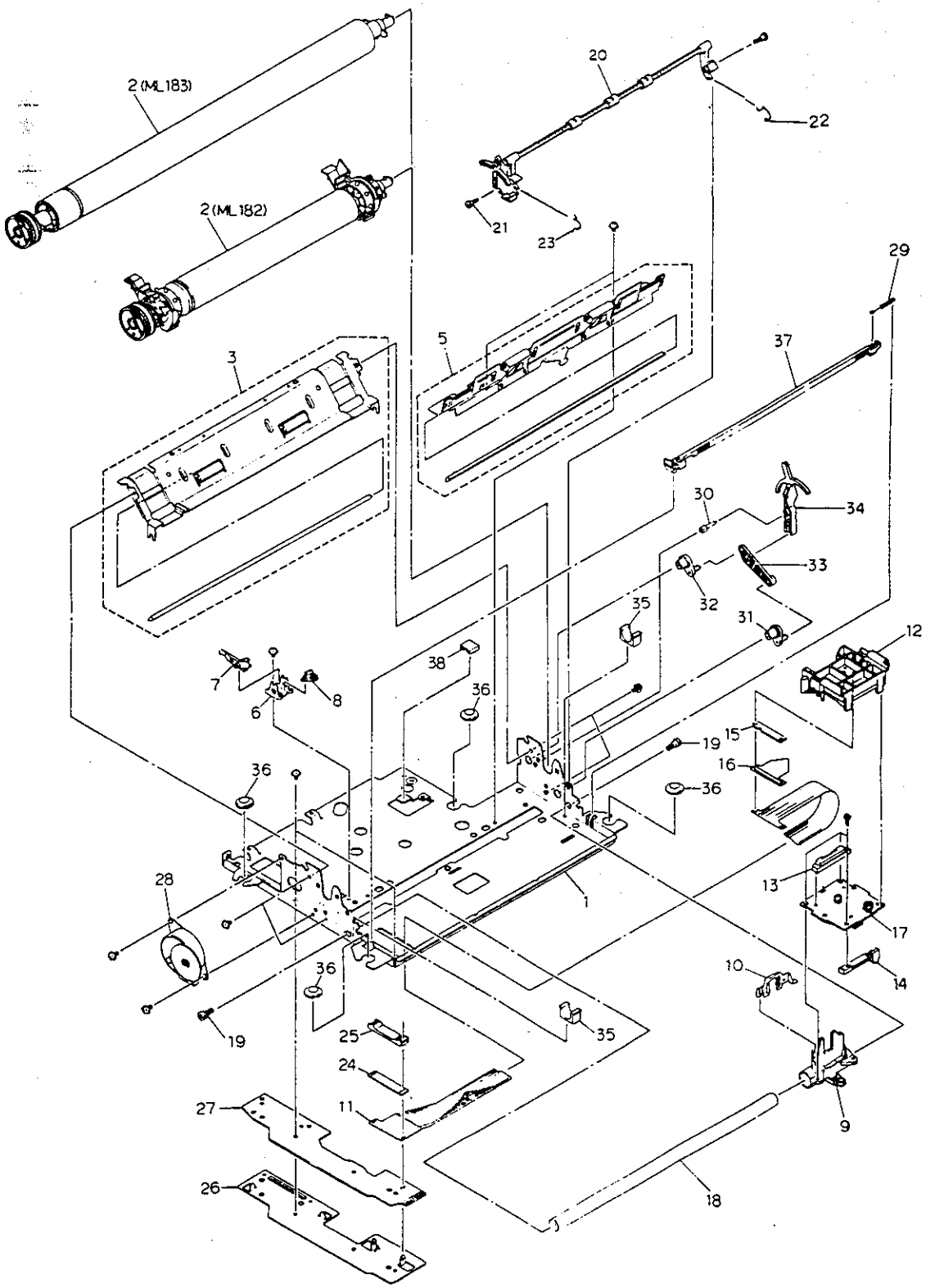



**Figure 8-2 Printer Mechanism**

**Figure 8-2 Printer Mechanism**

| Item No. | Part No. | Description | Qty | Remarks |
|---|---|---|---|---|
| 1 | 1PP4025-1011P1 | Base frame | 1 | ML182 |
| 1 | 1PP4025-1202P1 | Base frame | 1 | ML183 |
| 2 | 4PA4025-1012G1 | Platen assembly | 1 | ML182 |
| 2 | 4PA4025-1203G1 | Platen assembly | 1 | ML183 |
| 3 | 3PA4025-1027G1 | Paper chute assembly | 1 | ML182 |
| 3 | 3PA4025-1205G1 | Paper chute assembly | 1 | ML183 |
| 5 | 3PA4025-1032G1 | Bottom paper guide assembly | 1 | ML182 |
| 5 | 3PA4025-1207G1 | Bottom paper guide assembly | 1 | ML183 |
| 6 | 4PP4025-1038P1 | Near-end bracket | 1 | * (NOTE) |
| 7 | 4PB4025-1039P1 | Near-end lever | 1 | ML182 |
| 7 | 4PB4025-1211P1 | Near-end lever | 1 | ML183 |
| 8 | 4PB4025-1040P1 | Bottom near-end lever | 1 | * |
| 9 | 4PP4025-1118G1 | Carriage roller | 1 | * |
| 10 | 4PP4025-1048P1 | Head clamp | 1 | * |
| ⚠2 11 | 2PU4007-1065P1 | Carriage cable | 1 | ML182 |
| ⚠2 11 | 2PU4007-1065P2 | Carriage cable | 1 | ML183 |
| 12 | 4PA4025-1075G1 | Ribbon feed gear assembly | 1 | * |
| 13 | 3PB4025-1116P1 | Connector | 1 | * |
| 14 | 4PB4025-1088P1 | Slider | 1 | * |
| 15 | 4PP4025-1114P1 | Contact pressure rubber | 1 | * |
| 16 | 4PP4025-1182P1 | Cable clamp | 1 | * |
| 17 | 4YX4025-1800G1 | Space motor assembly | 1 | * |
| 18 | 4PB4025-1089P1 | Carriage shaft | 1 | ML182 |
| 18 | 4PB4025-1089P2 | Carriage shaft | 1 | ML183 |
| 19 | 4PB4025-1090P1 | Main shaft screw | 2 | * |
| ⚠1 20 | 3PA4025-2102G1 | Indicator assembly | 1 | ML182 |
| ⚠1 20 | 3PA4025-2410G2 | Indicator assembly | 1 | ML183 |
| 22 | 4PB4025-1097P1 | Pressure roller spring (R) | 1 | ML182 |
| 22 | 4PB4025-2413P1 | Pressure roller spring (R) | 1 | ML183 |
| 23 | 4PB4025-1139P1 | Pressure roller spring (L) | 1 | ML182 |
| 24 | 4PB4025-2412P1 | Pressure roller spring (L) | 1 | ML183 |
| 24 | 4PP4025-1099P1 | Contact rubber | 1 | * |
| 25 | 4PB4025-1100P1 | Cord clamp | 1 | * |
| 26 | 3PP4025-1103P1 | Circuit support | 1 | * |
| 27 | 2PU4003-5624P1 | SLBS printed-circuit board | 1 | * |

***Note:*** *Parts indicated by * are common to both ML182 and ML183*

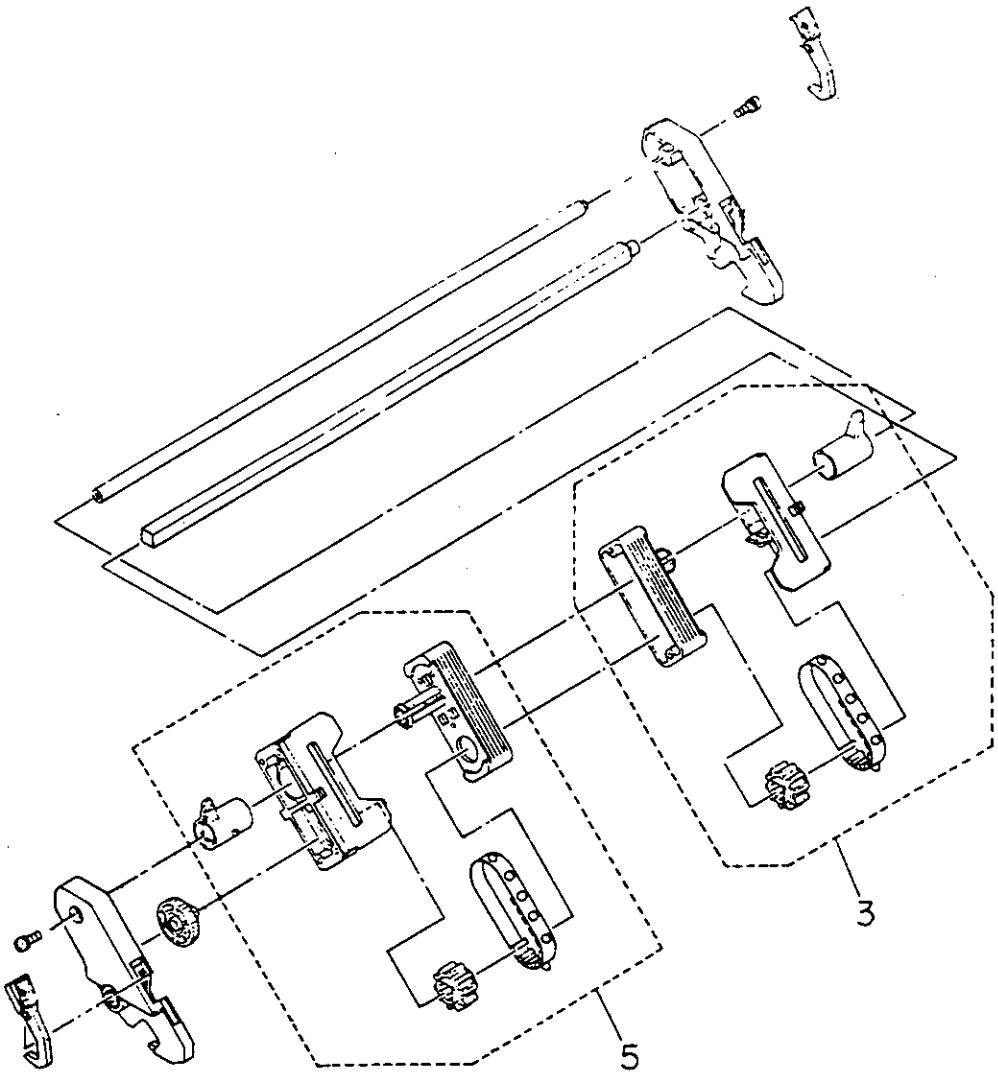
⚠1 : Correction
⚠2 : Changed

**Figure 8-2 (con.)**

| Item No. | Part No. | Description | Qty | Remarks |
|---|---|---|---|---|
| 28 | 4PB4025-1105P1 | LF motor | 1 | * |
| 29 | 4PB4025-1106P1 | Tension spring | 1 | * |
| 30 | 4PB4025-1107P1 | Release post | 1 | * (NOTE) |
| 31 | 4PB4025-1108P1 | Release link (front) | 1 | * |
| 32 | 4PB4025-1109P1 | Release link (rear) | 1 | * |
| 33 | 4PB4025-1110P1 | Release link | 1 | * |
| 34 | 4PB4025-1113P1 | Paper lock release lever | 1 | * |
| 35 | 4PB4025-1115P1 | Stopper rubber | 2 | * |
| 36 | 4PB4025-1159P1 | Grommet | 4 | * |
| 37 | 3PB4025-1049P1 | Space rack | 1 | ML182 |
| 37 | 3PB4025-1049P2 | Space rack | 1 | ML183 |
| 38 | 4PP4025-1158P1 | Radiating rubber | 1 | * |

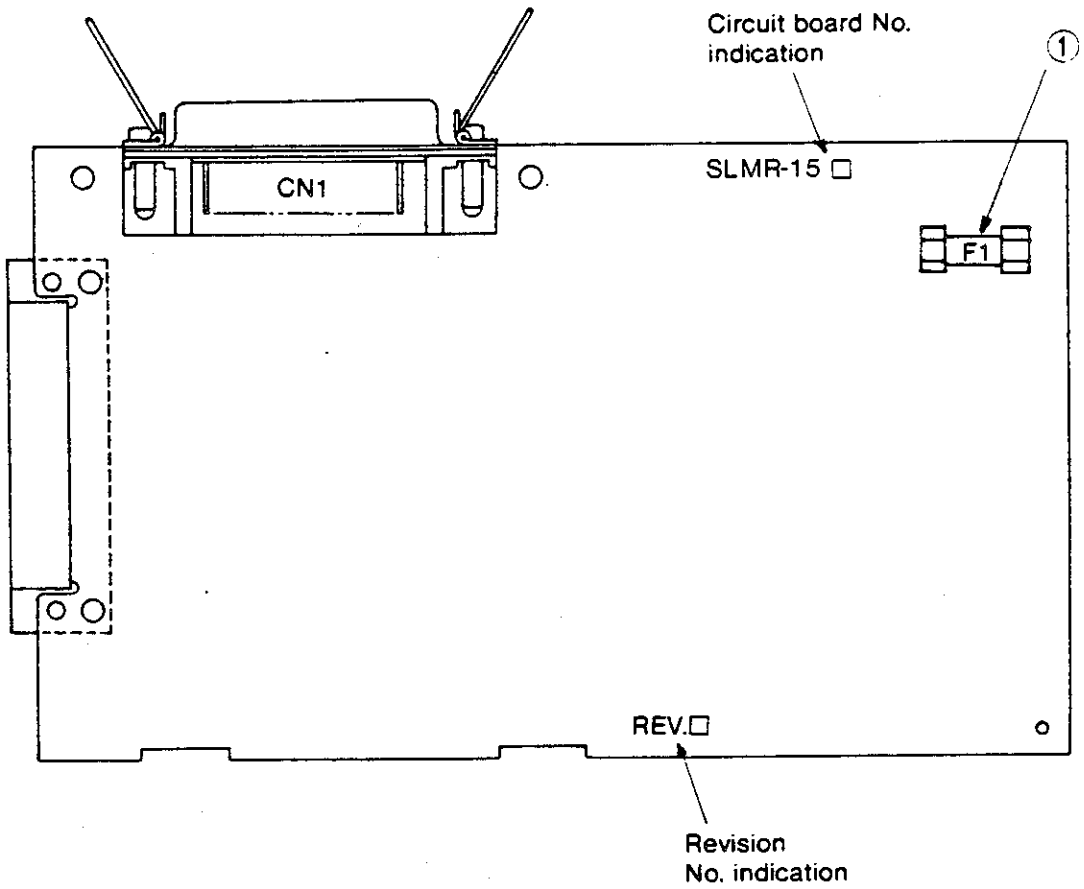
***Note:*** *Parts indicated by * are common to both ML182 and ML183*

When replacing the indicator assembly from an old model (4PA4025-1091G1, 4PA4025-1091G2), to a new model (4PA4025-2102G1, 4BA4025-2410G2), the pressure roller spring and upper cover must also be replaced at the same time.



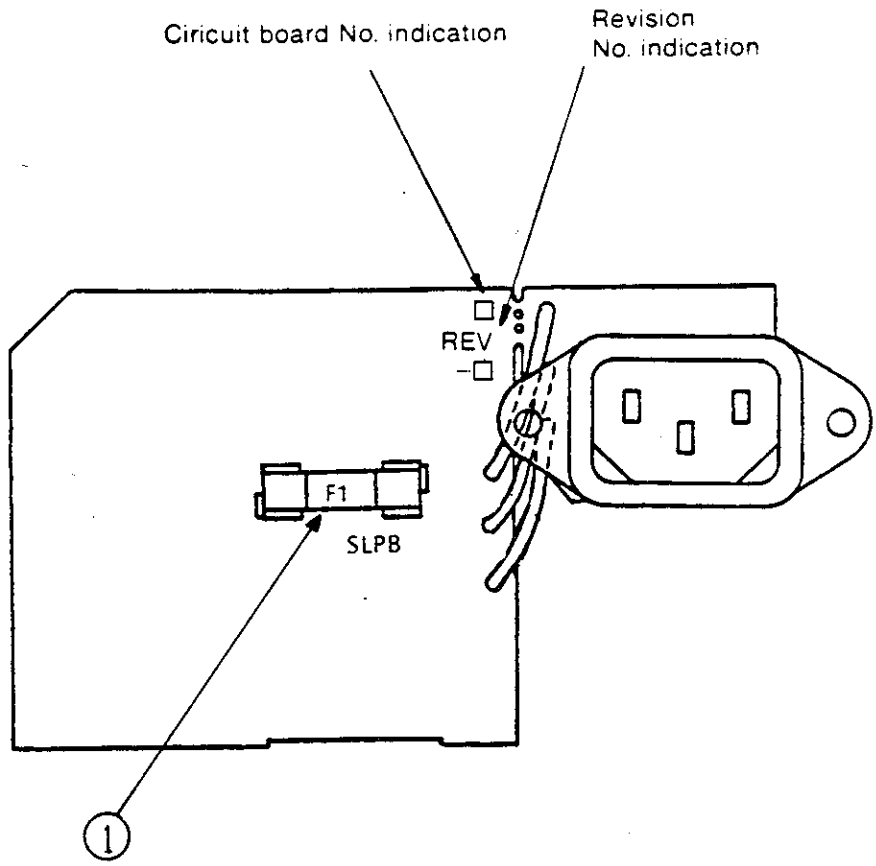

| Item No. | Part No. | Description | Qty | Remarks |
|---|---|---|---|---|
| 3 | 4PA4025-1315G1 | Pin tractor assembly (R) | 1 | (ML182 option) |
| 5 | 4PA4025-1328G1 | Pin tractor assembly (L) | 1 | (ML182 option) |

**Figure 8-3 Pin Tractor Assembly (Option)**




| Item No. | Part No. | Description | Qty | Remarks |
|---|---|---|---|---|
| 1 | 540A2045M1152 | Fuse 1.5A | 1 | |

**Figure 8-4 SLMR-15 Printed-Circuit Board**




| Item No. | Part No. | Description | Qty | Remarks |
|---|---|---|---|---|
| 1 | 540A2036M2102 | Fuse 1.0A | 1 | G2 120V |
| 1 | 540A2044S2631 | Fuse 0.63A | 1 | G3 220V/240V |

**Figure 8-5 SLPB Printed-Curciut Board**

# APPENDIX A.
# Theory of Operation

# APPENDIX A THEORY OF OPERATION

## 1. CIRCUIT OPERATION

This section describes the operation of the printer circuits.

### 1.1 General

The electrical section of the printer consists of the components shown in figure 1.

On the control board are mounted not only the microprocessor and its peripheral circuits but also the DC power circuit, drive circuits, paper end sensor, and interface connector.

The power supply is connected with the control circuit via a cable, and other electrical parts are connected via the connection board.

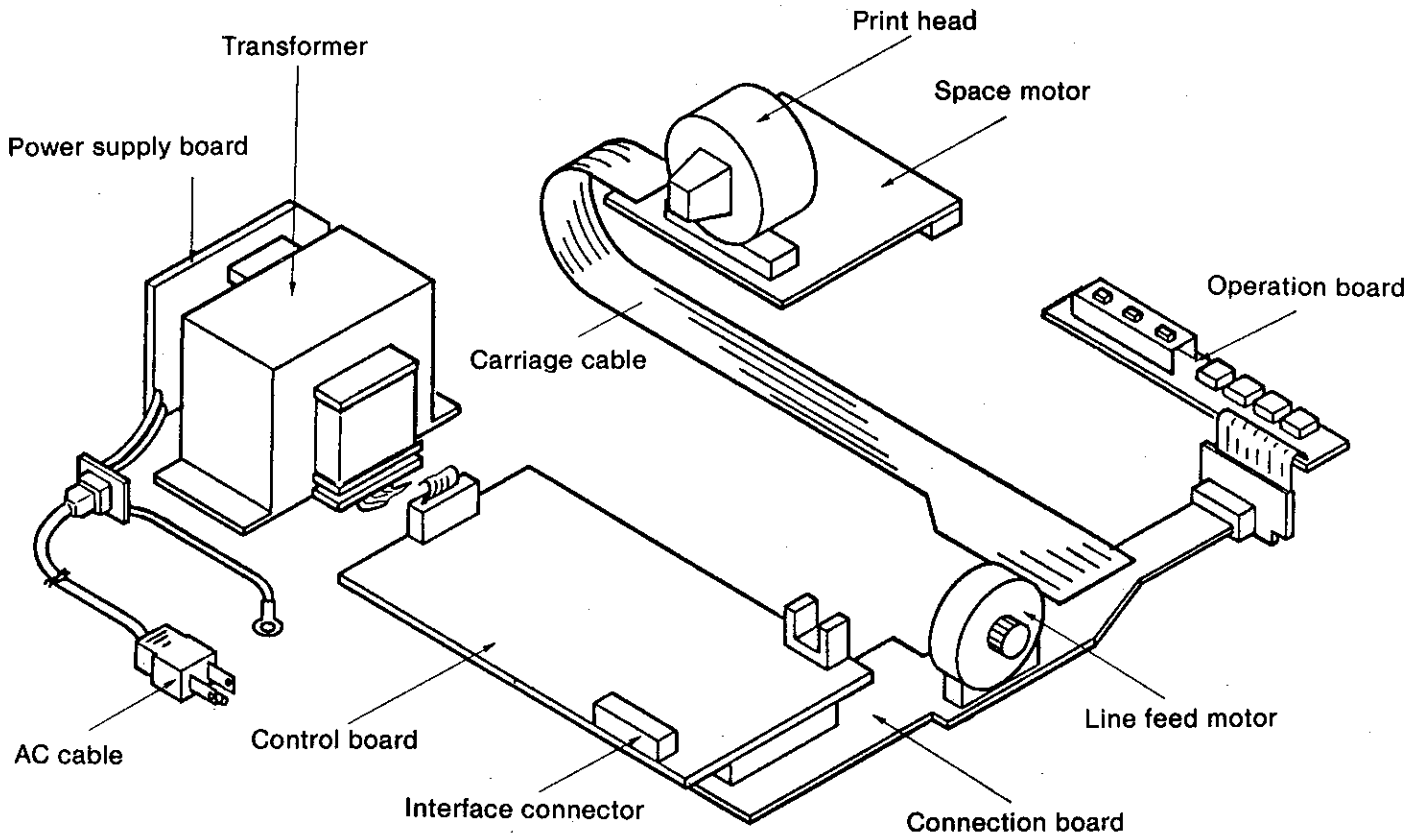



**Figure 1 Configuration of Electrical Section**

## 1.2 Microprocessor and Its Peripheral Circuits

(1) Microprocessor (Q12: 8051)

The microprocessor is the nucleus of the control circuit, and its peripheral circuits operate under control of this microprocessor.

The I/O ports of the microprocessor are connected with the address bus, data bus, and control lines.

(2) Program ROM (Q8)

The program ROM stores the control program for the printer. The microprocessor operates under control of this program.

(3) RAM (Q13)

The RAM stores data such as received print data.

(4) LSI (MSM60201)

The MSM60201 is an external interface LSI, and has the following functions:

(a) Parallel interface function

The parallel interface function mode is selected when the level of the mode selection signal (ISEL) is high. In this mode, IFD1 to 8 are used as an input port, and the parallel data received through the interface connector is latched in accordance with the strobe signal ($\overline{STB}$) and is sent to the CPU in accordance with the $\overline{RD}$ signal. In this mode, the MSM60201 also sends $\overline{BUSY}$, ACK, $\overline{PE}$, and $\overline{SELECT}$ signals to the interface connector in accordance with the $\overline{WR}$ signal.

(b) Serial interface function

The ISEL signal goes low and the serial interface function mode is selected only when the high-speed serial interface board (9600 BPS) is installed.

In this mode, the MSM60201 sends $\overline{SSD}$, $\overline{RTS}$, and DTR signals to the interface connector in accordance with the $\overline{WR}$ signal.

(c) Address decoder

The address decoder decodes the address signal (A12 to A15), and sends the $\overline{ROM\ SEL\ 0}$ signal.

(d) Parallel port function

This function is used to load the DIP switch data.

(5) LSI (MSM61048)

The MSM61048 motor control LSI has the following functions:

(a) Space motor speed control function

This accelerates and decelerates the space motor in accordance with commands from the microprocessor and controls the space motor speed in each printing mode.

(b) Dot timing generation function

This generates the dot-on timing signal $\overline{(IPT)}$, synchronized with the printing speed in accordance with output signals (PHASE A, B) of the encoder on the space motor, and sends this timing information to the microprocessor.

(c) I/O ports

The MSM61048 has a 12-bit output port and a 10-bit input port, and outputs control signals in accordance with the commands input from the microprocessor.

The input port is also used to read information from the operation panel switches, etc.

If a high-speed serial interface board (9600 BPS) is installed, the input port is also used to read the DIP switch data from the interface board.

(d) Address latch

The address latch latches the low-order 8 bits of the address (A0 to A7). These bits are used as an address for read/write operations with peripheral devices.

(e) Address decoder

The address decoder decodes the address signal (A11 to A15) and sends the $\overline{RAM\ SEL\ 4}$ signal.

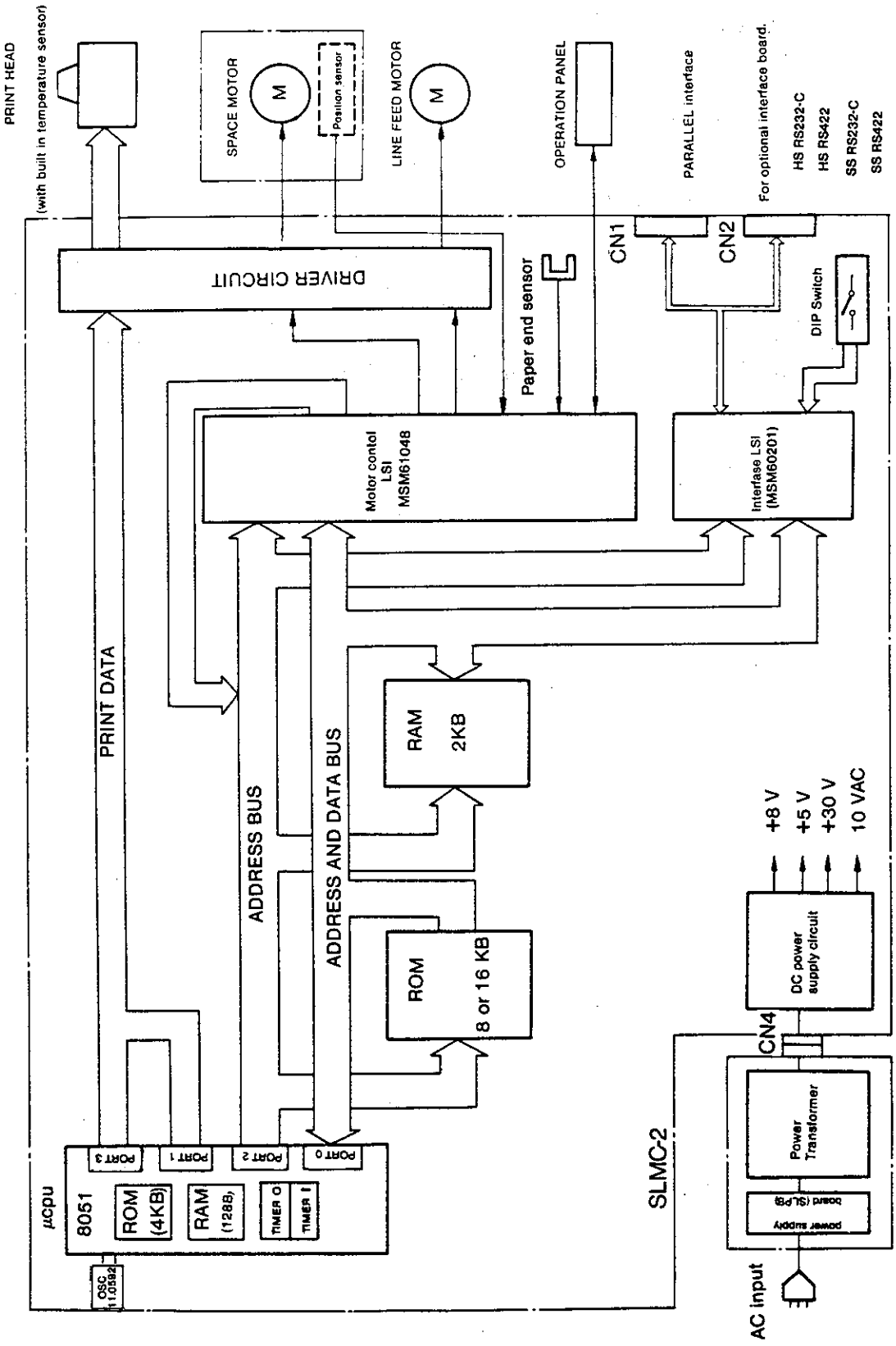



**Figure 2 Block Diagram**

## 1.3 Initialization

The printer is initialized when the power is turned on or when the parallel interface signal, I-PRIME, is received from the host computer.

Initialization is started with the RST OUT signal output from the reset circuit (Q7 pin 13) to reset Q12 (mircoprocessor), Q4 (interface LSI), and Q5 (motor control LSI).

When resetting is completed, the program starts with mode setting of Q12, Q4, and Q5, memory (ROM and RAM) check, RAM initialization, and then carriage homing. The program finally establishes the interface signals (output of ACK signal, BUSY signal, etc.), lights the SELECT indicator, and informs the host computer that the printer is ready for data reception (in the data reception wait state), thus completing the initialization.

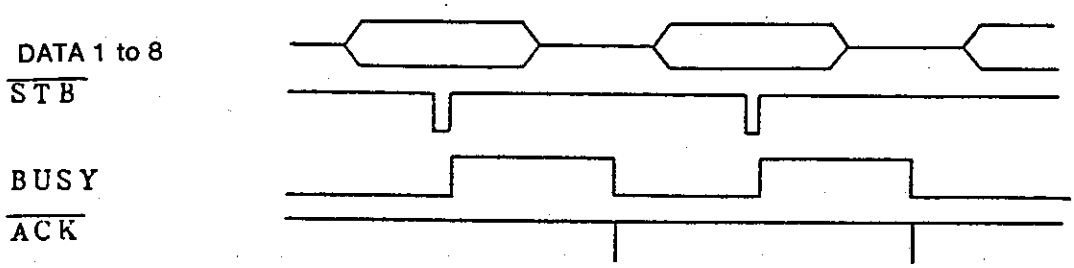
## 1.4 Interface Control

(1) Parallel interface

The data from the interface is input through the connector (CN1), and the interface LSI (Q4: MSM60201) latches this input data in sync with the $\overline{STB}$ signal.

The BUSY signal is on during processing of this data. When the processing is completed, the BUSY signal is turned off, and an $\overline{ACK}$ signal is sent to request the next data.

The BUSY signal is also sent to stop data sending when data cannot be received due to receiving buffer full state, etc.




(2) Serial interface

If the high-speed (9600 BPS) serial interface board is installed, the ISEL signal becomes low, and the interface LSI changes the I/O port to that for serial interface.

In reception, serial data from serial interface board is input through pin 33 (NSTB) of the LSI(Q4). This data is output from pin 44 (NRXD) via the internal latch, and is sent to serial port pin 10 (RXD) of the microprocessor (Q12).

In sending, the serial data is sent out directly from pin 11 (TXD) of the microprocessor.

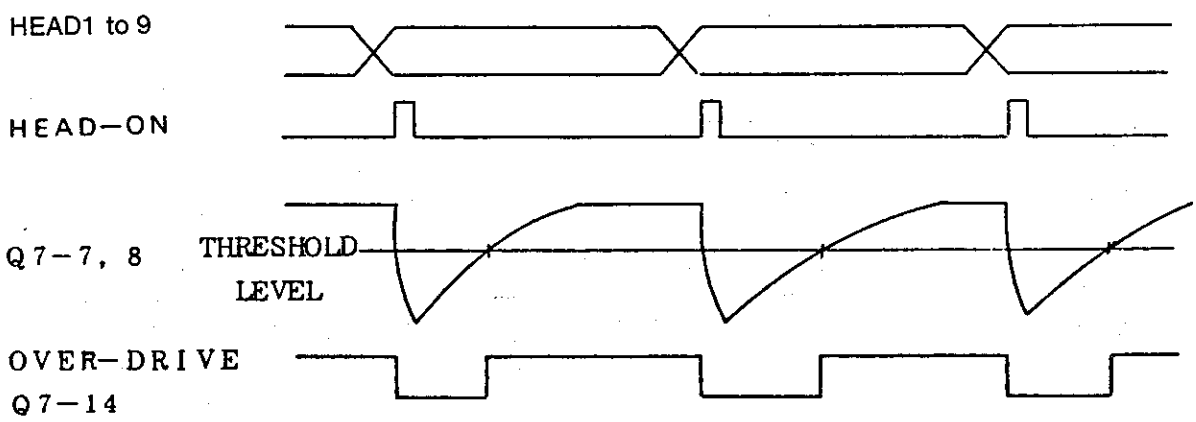
Refer to the High-Speed (9600 BPS) Serial Interface Manual for details.

## 1.5 Print Head Drive Circuit

This circuit drives the head magnets corresponding to the HEAD DATA1 to 9 signals in accordance with the HEAD-ON signal, thus making the print head print characters.

When the HEAD-ON signal goes high, the RC integrator (R157, and C158 or C55) determines the head drive time. This integrator automatically compensates the printing pressure in accordance with the drive voltage (+30 V).

That is, the integrator elongates the drive time if the drive voltage lowers, and shortens the drive time if the drive voltage rises.



## 1.6 Spacing

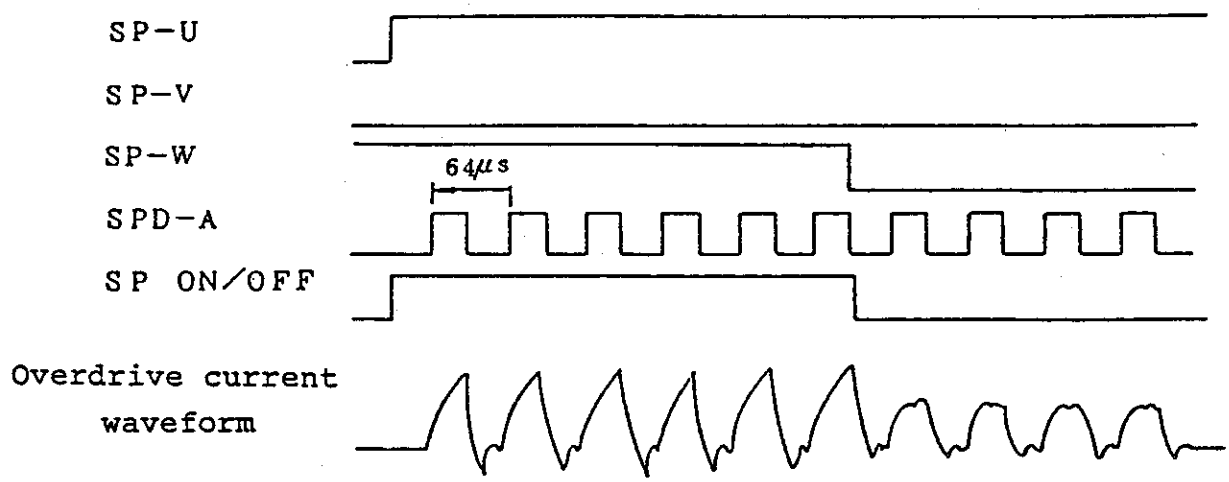
(1) Space motor control

The motor control LSI (Q5: MSM61048) outputs the space motor phase signals (SP-U, SP-V, and SP-W) in accordance with the spacing command from the microprocessor, and at the same time outputs the overdrive signal (SPD-A).

The SPD-A signal is a fixed-period pulse signal whose pulse width is controllable by the program, and is used to control the motor drive time.

The SP ON/OFF signal is output for acceleration and deceleration requiring a larger torque.

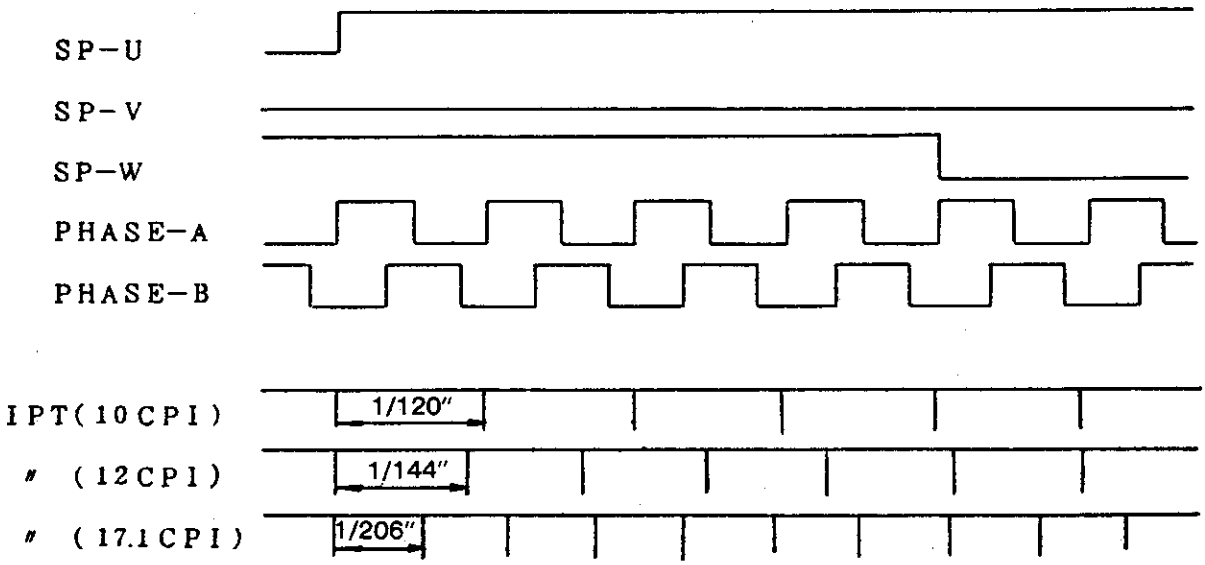
The motor driver (MTDV) drives the space motor in accordance with these signals. Pins 9 and 11 of the MTDV are for the protective circuits against overvoltage and overcurrent, respectively.



(2) Slit encoder

With operation of the space motor, the PHASE-A and PHASE-B signals are generated by the photosensor and disk slit.

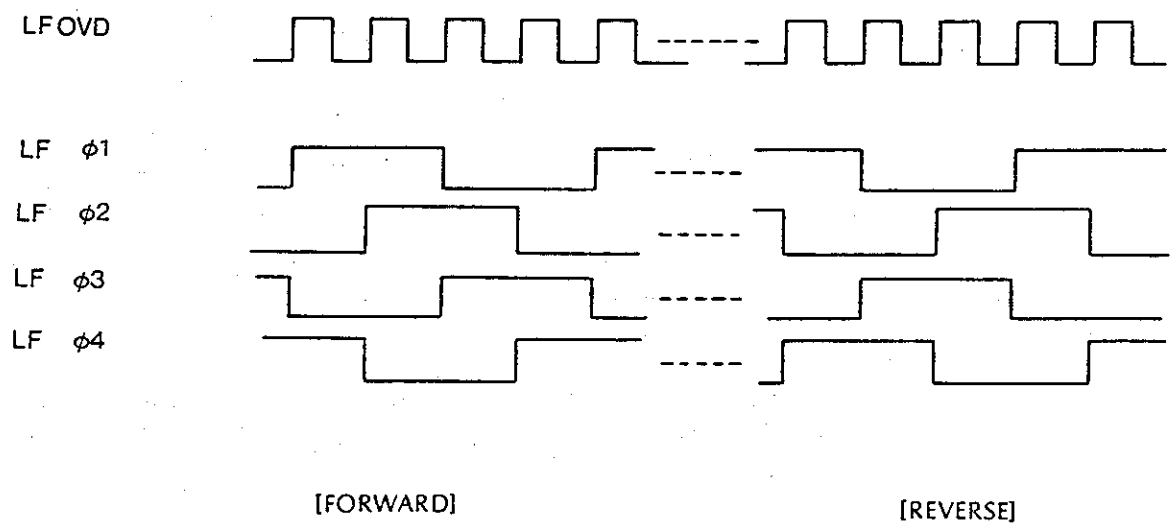
The motor control LSI (Q5: MSM61048) frequency divides these edge pulse signals in accordance with the print pitch, and outputs the $\overline{IPT}$ signal to provide dot-on timing and carriage position detection timing.



## 1.7 Line Feed

The line feed motor is locked with the +8 voltage while it is at a stop.

During line feed operation, the line feed motor is driven by the +30 voltage applied in accordance with the LF OVD signal.



## 1.8 Alarm Circuits

(1) Drive circuit fault alarm circuit

This is a protective circuit which makes the AC fuse blow when a fault occurs in the print head drive circuit, space motor drive circuit, line feed motor drive circuit, or their peripheral circuits, thus preventing trouble.

For this purpose, this circuit monitors the drive time using the HDALM, SPALM, and LFALM signals interlocked with the overdrive signal of each drive circuit. If the drive time of any drive circuit exceeds the specified time, the drive circuit fault alarm circuit outputs an ALM signal (high) to turn on the SCR.

This causes the secondary coil (30 V) of the transformer to be short-circuited, causing an overcurrent to flow through the primary coil and making the AC fuse blow.

(2) Head overheat alarm circuit

In order to protect the head coils, this circuit monitors the head temperature using the built-in thermistor of the print head.

If heavy-duty printing is performed continuously for a long time, the print head temperature rises. When the head temperature reaches a certain value (about 100°C), a head overheat alarm is detected.

When the alarm is detected, the printing operation is halted to wait for the head temperature to lower. When the head temperature returns below the alarm detection temperature, the printing operation is restarted.

The alarm detection is performed as follows:

When the temperature in the print head rises, the resistance of the thermistor lowers, and the potential of the comparator (Q7) negative input lowers to invert the comparator output, causing the HEAD TEMP signal to be output to the motor control LSI.

## 1.9 Paper End Detection Circuit

When the paper runs out, the photosensor (PE) on the control board is turned off, and as a result, the $\overline{\text{PAPER END}}$ signal becomes 0. This signal is fed to pin 34 of the motor control LSI (Q5), causing the printing operation to be stopped and the ALARM indicator to light.

## 1.10 Power Supply

The power supply consists of a power transformer, power supply board, a DC power supply circuit.

The input AC voltage is transformed into 7.6 VAC, 24 VAC, and 10 VAC by the power transformer, and these AC voltages are further converted into +8 VDC, +5 VDC, and +30 VDC levels by the DC power supply circuit for supply to each circuit.

(1) Power supply board

The power supply board mounts the power switch, AC fuse and AC noise filter.

(2) Power transformer

If the power transformer temperature rises abnormally, the built-in temperature fuse of the transformer blows to prevent any adverse effects on other components.

# 2. MECHANICAL OPERATION

## 2.1 Mechanism and Operation of Print Head (see figure 3)

The print head is spring-loaded, utilizing a permanent magnet, and can be easily removed or installed. The print head is mounted on a carriage that runs parallel to the platen, and is connected with the control circuit via the head board.

The print head consists of:

(a) Wire guide
(b) Wires
(c) Armature assembly
(d) Yoke
(e) Springs
(f) Spacer
(g) Magnet assembly
(h) Thermistor
(i) PC board

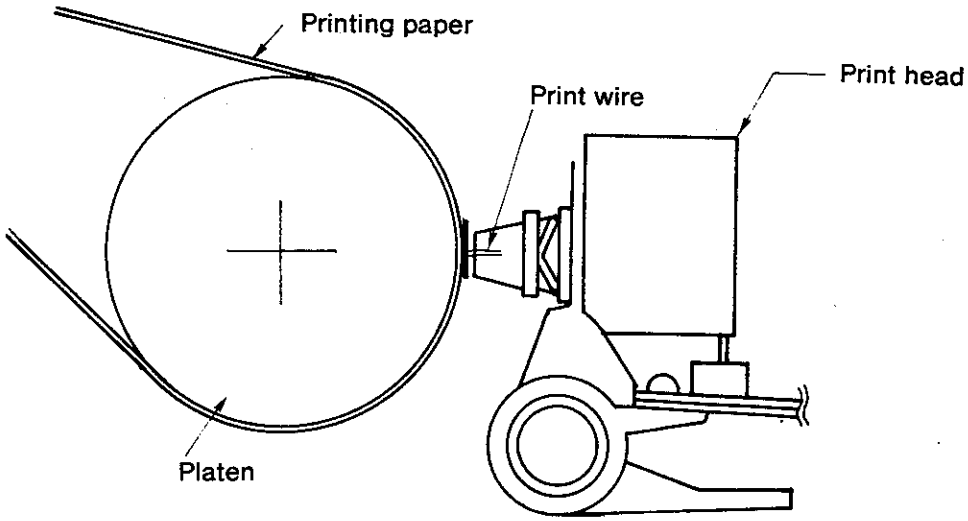
(1) Print head operation

When the print head is in the non-printing state, each armature is attracted by the permanent magnet, and the springs holding the armatures are compressed by the thickness of the spacer. Therefore, the print wires, which are fastened to the individual armatures, are held retracted within the wire guide.

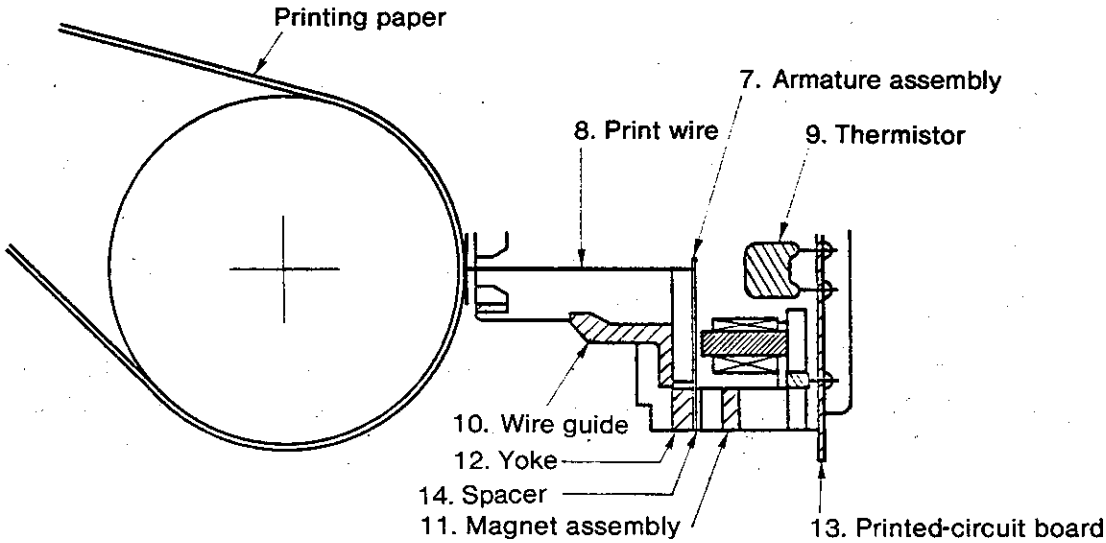
When signals corresponding to a character to be printed are detected by the control circuit, currents flow through the corresponding coils to nullify the magnetic flux generated by the permanent magnet between the armatures corresponding to those coils and the permanent magnet pole. As a result, those armatures are driven toward the platen by the force of the armature springs, and the print wires fastened to those armatures eject from the tip of the wire guide and strike the paper through the ribbon to print dots on the paper.

After the character is printed, the magnetic flux of the permanent magnet attracts the armatures again so that the print wires retract into the wire guide.

The print head has a built-in thermistor to prevent the coils from overheating and burning due to continuous bi-directional printing over a long period. If the coil temperature exceeds the limit(about 100°C),the control circuit detects the thermistor signal, and stops the printing operation until the coil temperature returns below the limit.




(1) Printing




(2) Not printing

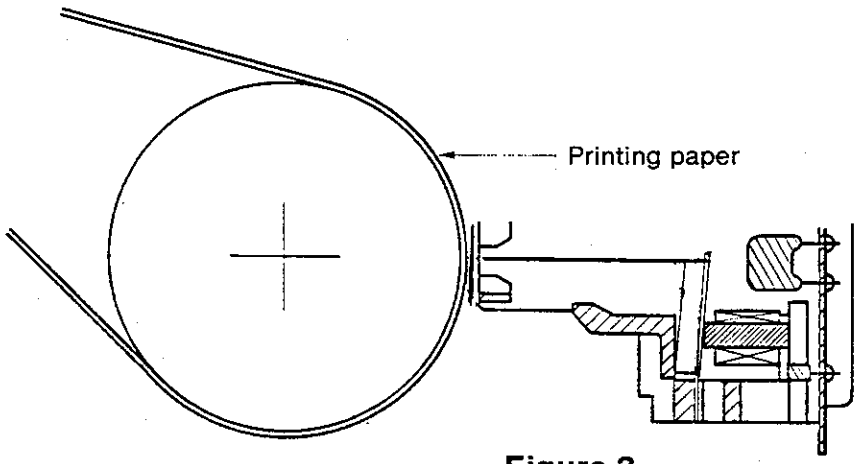



**Figure 3**

## 2.2 Space Mechanism and Operation (see figure 4)

The spacing operation is performed by driving the carriage frame, which is guided by the carriage shaft mounted parallel to the platen, by the DC motor mounted on the bottom of the carriage frame.

The space mechanism consists of:

(a) DC motor with motor gear
(b) Carriage frame (including stator yoke and motor board)
(c) Carriage shaft
(d) Space rack
(e) Slit sensor
(f) Slit disk

(1) Spacing operation

The carriage, with the print head and space motor mounted on it, moves parallel to the platen along the carriage shaft. As the space motor rotates counterclockwise, the motor gear is driven rightward along the space rack, and as a result, the carriage is driven also rightward.

The spacing mechanism is so designed that when the space motor rotates one turn, the carriage frame moves 0.8 inch (20.32 mm).

Motor rotation also rotates the slit disk, and the slits pass through the slit sensor. The position of the carriage frame can be obtained by counting the number of slits detected by the slit sensor.

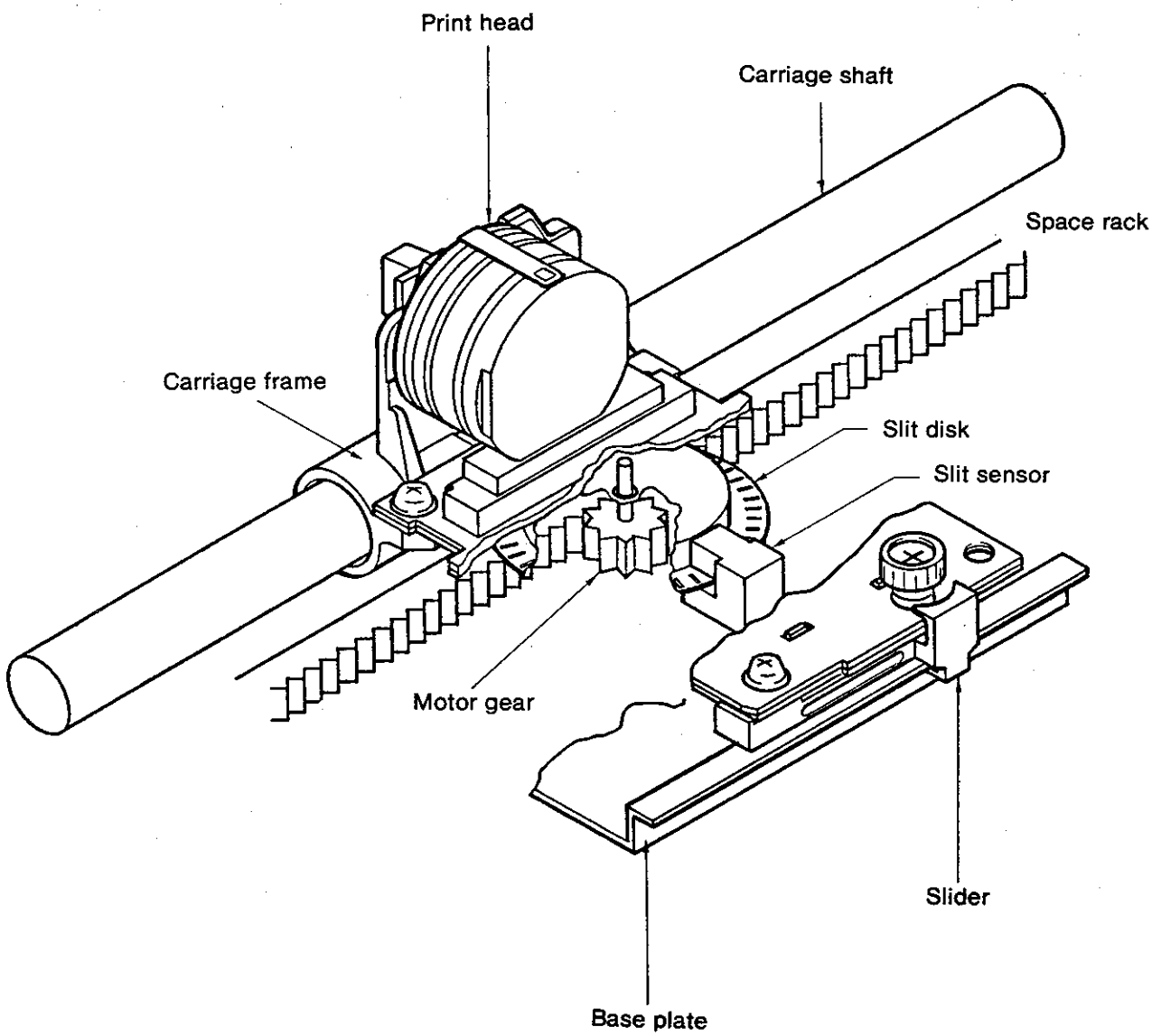

Print head
Carriage shaft
Space rack
Carriage frame
Slit disk
Slit sensor
Motor gear
Slider
Base plate

**Figure 4**

## 2.3 Head-Gap Adjusting Mechanism (see figure 5)

The head-gap adjusting mechanism adjusts the gap between the platen and print head by changing the tilt angle of the carriage frame with the adjusting lever.

When the adjusting lever is operated, the adjusting screw, which is interlocked with the lever via a gear, rotates to change the tilt angle of the carriage frame around the carriage shaft.

The print head, mounted vertically on the opposite side of the adjusting screw on the carriage frame, moves closer to or away from the platen with change in the carriage frame tilt angle.

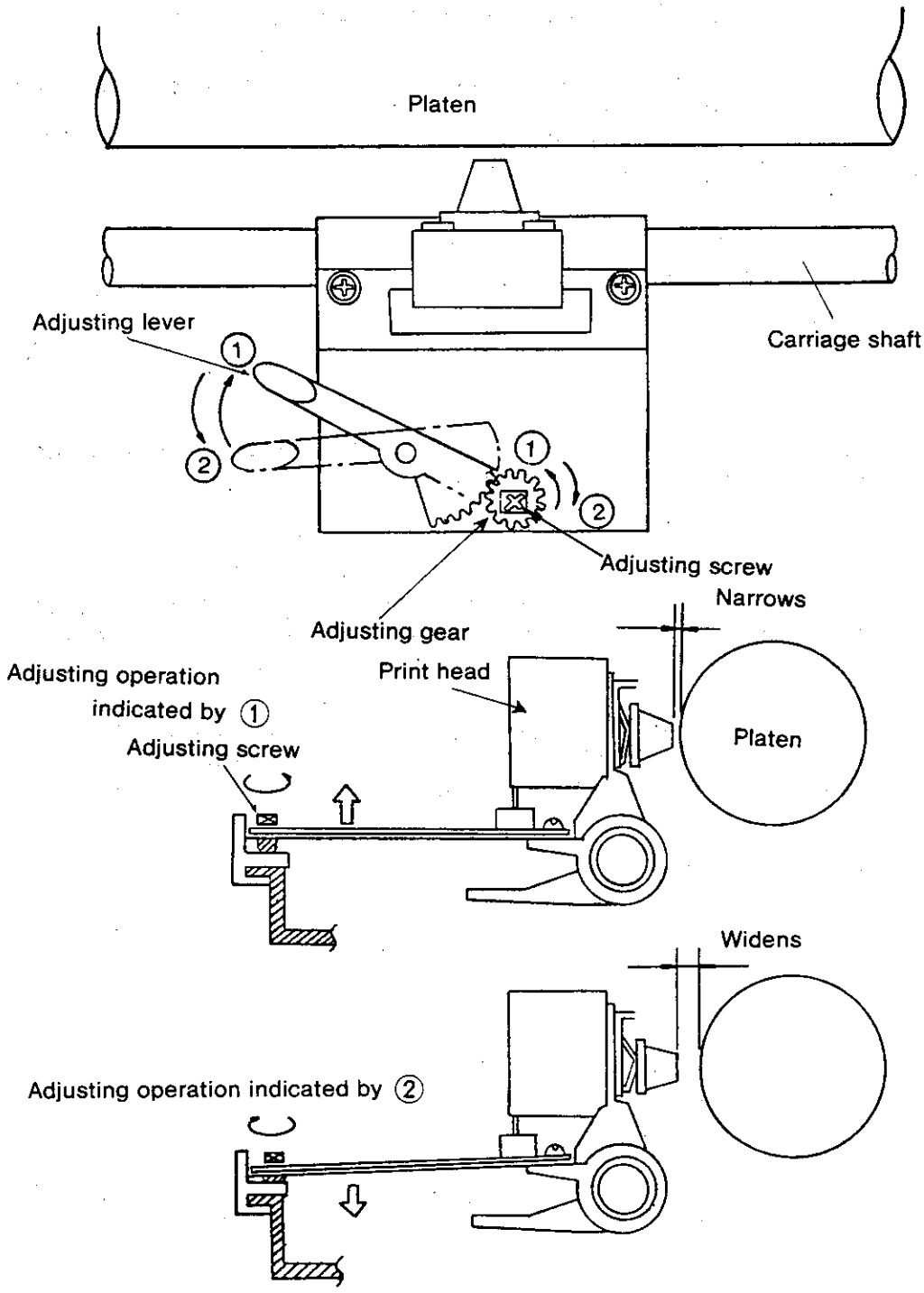

Platen
Adjusting lever
Carriage shaft
Adjusting screw
Adjusting gear
Narrows
Adjusting operation
indicated by ①
Print head
Adjusting screw
Platen
Widens
Adjusting operation indicated by ②

**Figure 5**

## 2.4 Ribbon Feed Mechanism and Operation (see figure 6)

The ribbon feed mechanism feeds the ribbon synchronously with the spacing operation. The mechanism is driven by the space motor.

The ribbon feed mechanism consists of:

(a) Ribbon feed gear assembly
(b) Ribbon gear (space motor)
(c) Ribbon cartridge

(1) Ribbon cartridge

A one-way-feed endless ribbon is used. Ink is replenished by the built-in ink tank in the ribbon cartridge so that clear printing is always assured.

(2) Ribbon feed operation

As the space motor rotates, the ribbon gear on the space motor shaft rotates to drive the drive gear in the ribbon cartridge via the ribbon feed gear assembly, and as a result, the ribbon is fed.

In bi-directional printing, the ribbon gear rotational direction reverses every time the direction of carriage movement reverses. In this case, the gears in the ribbon feed gear assembly switch the rotational direction so as to feed the ribbon in a fixed direction.

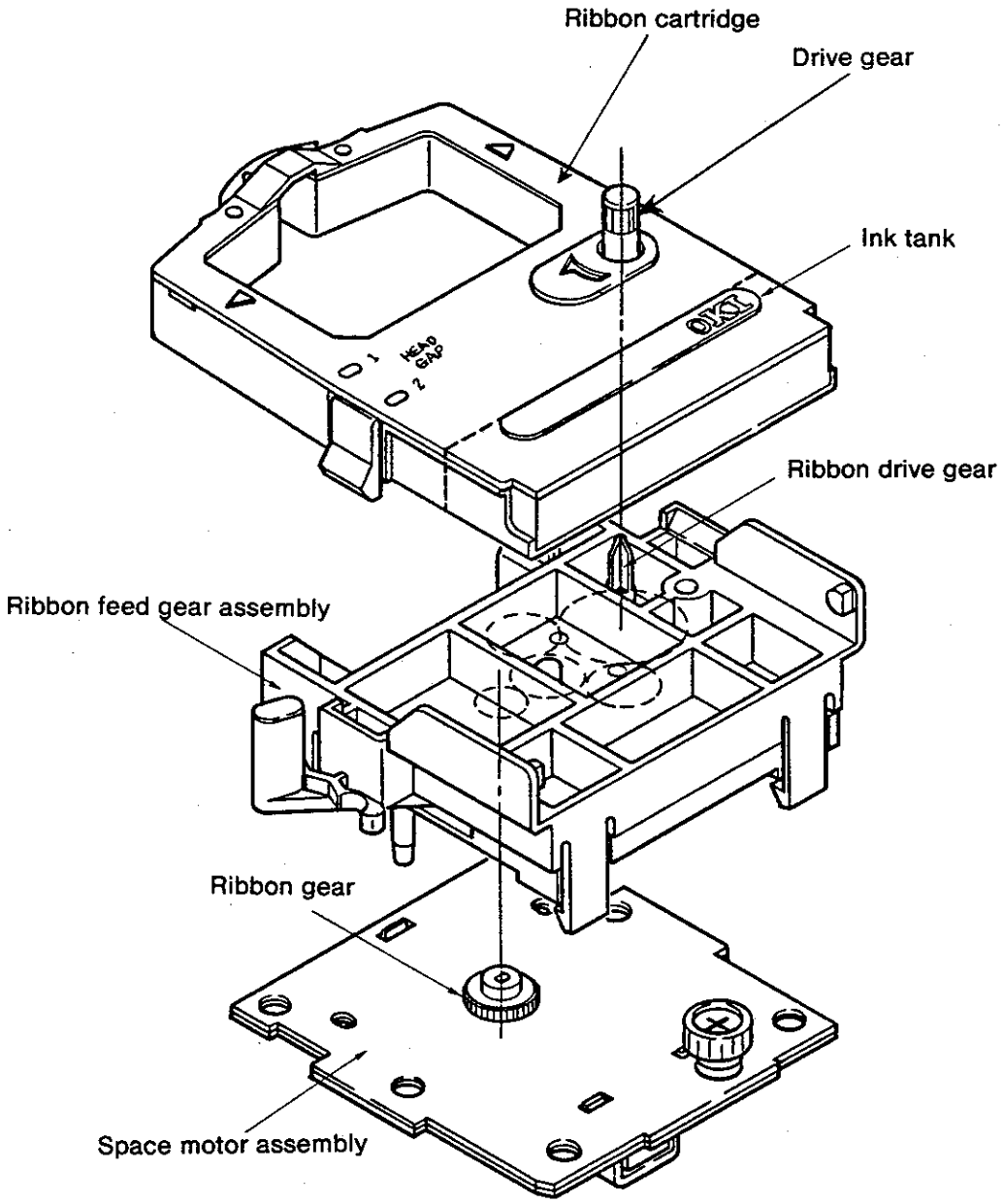

Ribbon cartridge
Drive gear
Ink tank
Ribbon drive gear
Ribbon feed gear assembly
Ribbon gear
Space motor assembly
HEAD GAP
1
2
OKI

**Figure 6**

## 2.5 Paper Feed Mechanism and Operation

Paper feed is performed by rotating the platen and pin tractors, which are driven by the LF pulse motor.

The paper feed mechanism consists of:

(a) Pulse motor with gear
(b) Reduction gear
(c) Platen
(d) Tractor feed unit
(e) Pressure rollers

(1) Paper feed operation (see figure 7)

The paper feed pulse motor is mounted on the left side frame, and its rotation is transmitted to the platen through the reduction gear. Platen rotation is also transmitted through the idle gear to the tractor feed unit.

The paper feed mechanism is so designed that when the pulse motor rotates 48 steps (360°), paper is fed 0.167 inch (4.32 mm).

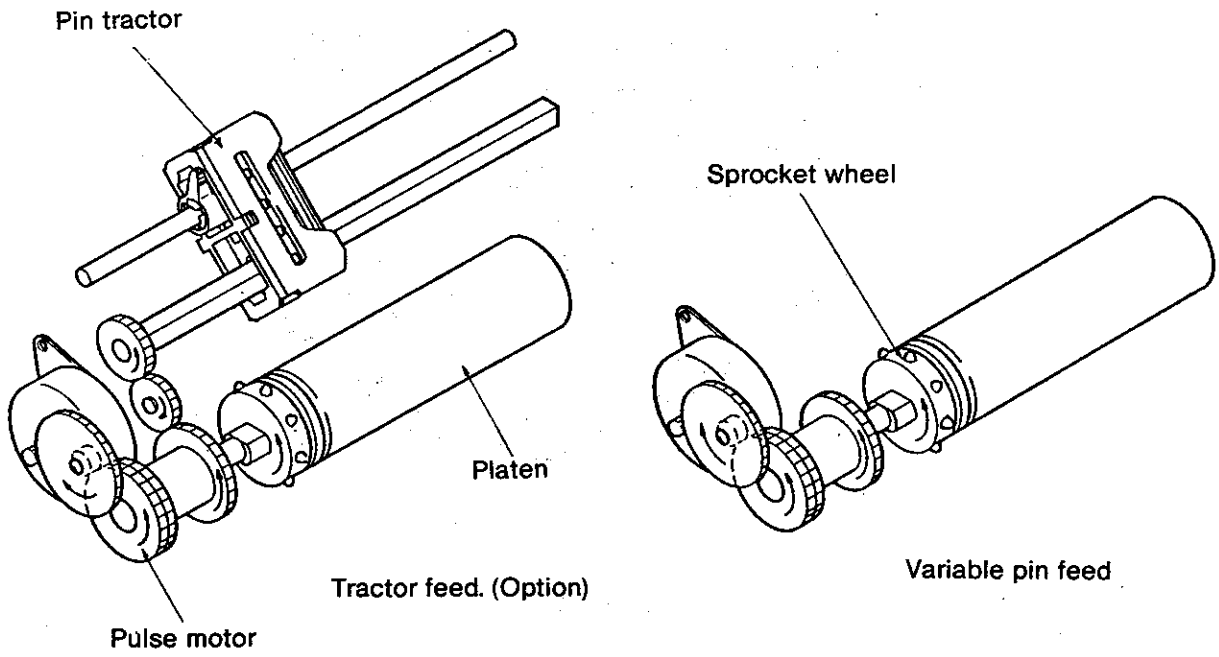



**Figure 7**

(2) Paper clamp mechanism (see figure 8)

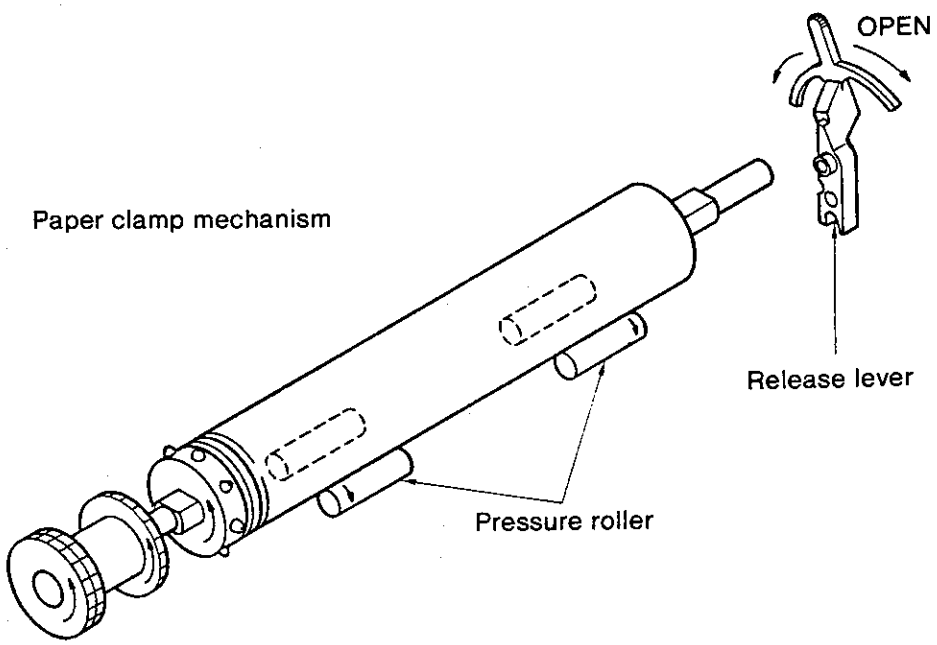



**Figure 8(a)**

When the release lever is set to the open position, the release link moves backward, and the front and rear release links rotate counterclockwise. At the same time, the release shaft interlocked with them also rotates counterclockwise so that a gap is made between the pressure rollers and platen, allowing insertion of paper.

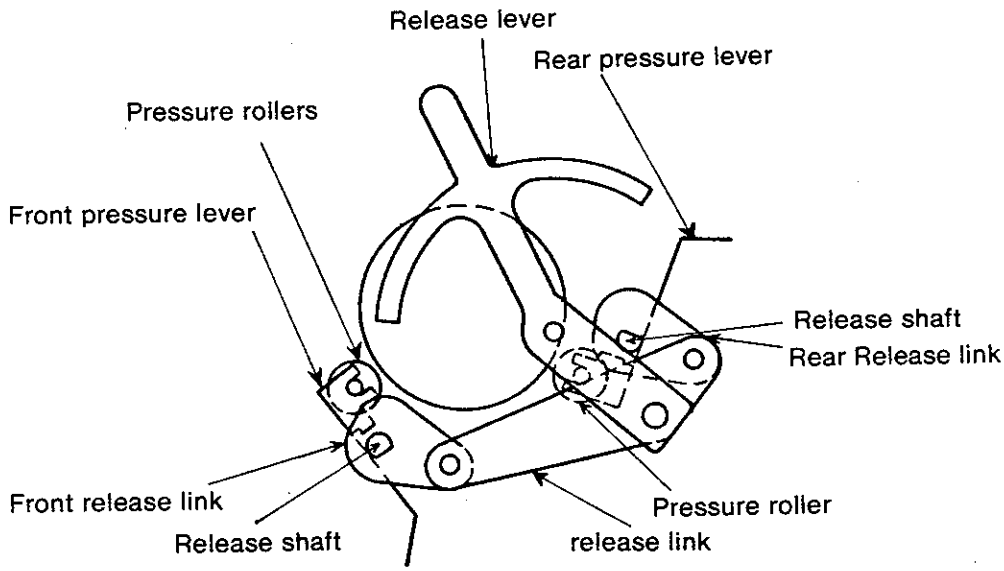
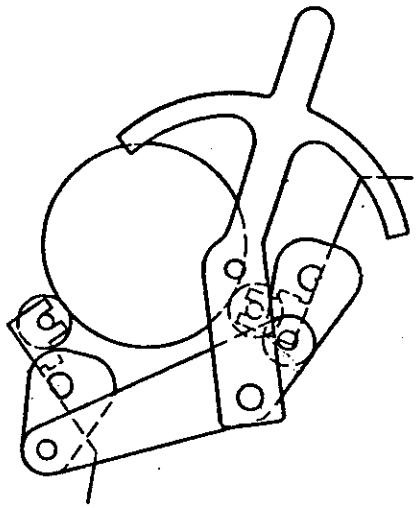



**Figure 8(b)**

When the release lever is set to the closed position, the release link moves forward, and the front and rear release links rotate clockwise. At the same time, the release shaft interlocked with them also rotates clockwise so that the pressure rollers are pushed against the platen by the front and rear presssure levers, allowing paper to be fed.



CLOSE

**Figure 8(c)**

## 2.6 Paper-End Detection Mechanism (see figure 9)

(1) Rear paper feed

When paper is present in the printer, the paper prevents the near-end lever from falling into the groove of the paper chute, and the paper-end sensor is on.
When the printer runs out of paper, the near-end lever falls into the groove of the paper chute so that the rear part of the near-end lever turns off the paper-end sensor, and thus paper-end is detected. Paper-end is detected when the end of the remaining paper is about 1 inch (25.4mm) from the printing position.

(2) Bottom paper feed

When paper is present in the printer, the paper prevents the bottom near-end lever from falling into the hole in the bottom paper guide. That is, the wedge on the bottom near-end lever pushes down the projection of the near-end lever, and the paper-end sensor is on.
When the printer runs out of paper, the tip of the bottom near-end lever falls into the hole in the bottom paper guide so that the rear part of the near-end lever turns off the paper-end sensor, and thus paper-end is detected. Also in this case, paper-end is detected when the end of the remaining paper is about 1 inch (25.4 mm) from the printing position.

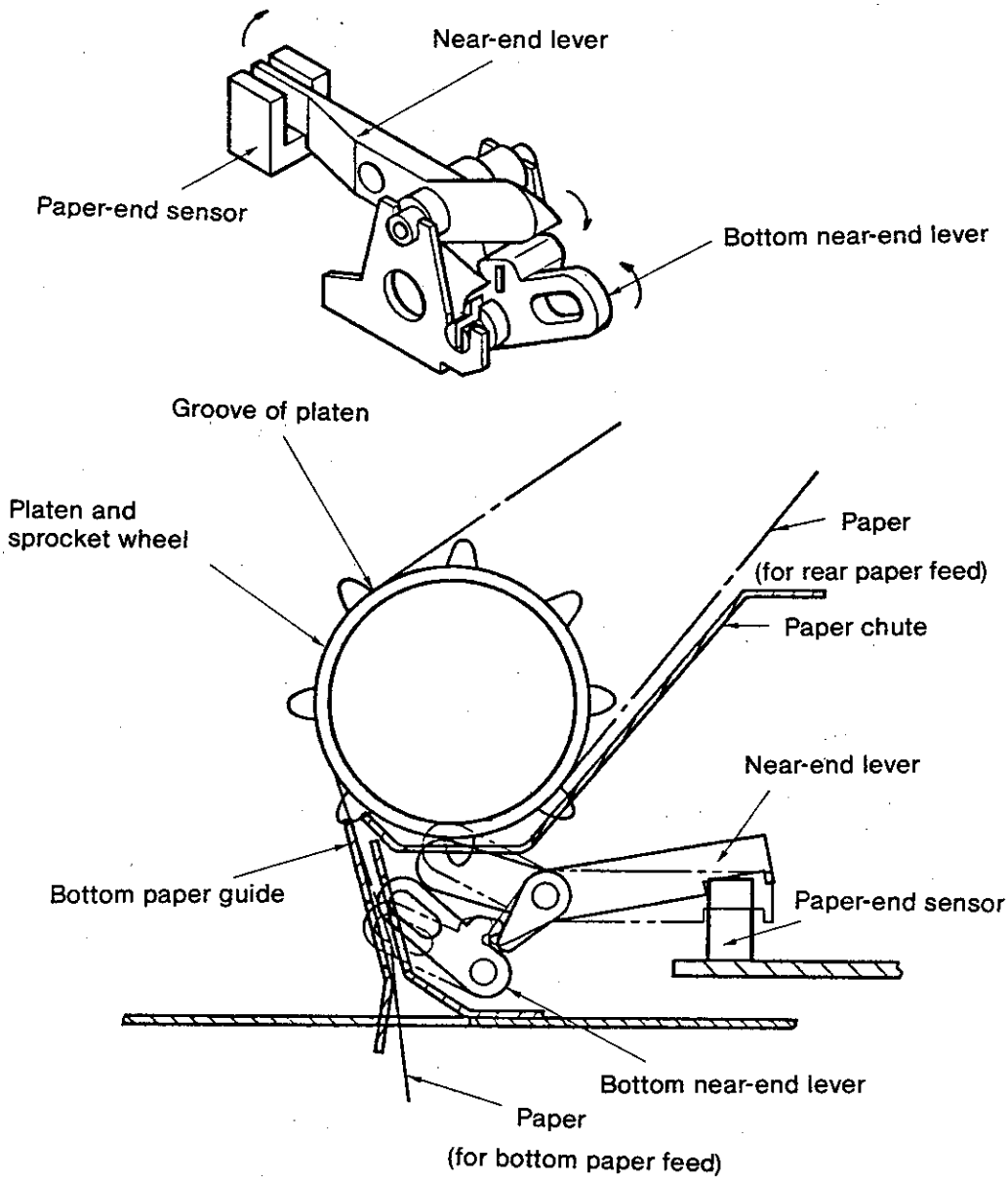

Near-end lever
Paper-end sensor
Bottom near-end lever
Groove of platen
Platen and
sprocket wheel
Paper
(for rear paper feed)
Paper chute
Near-end lever
Bottom paper guide
Paper-end sensor
Bottom near-end lever
Paper
(for bottom paper feed)

**Figure 9**

# APPENDIX B.

# Specifications (Standard Model)

# APPENDIX B SPECIFICATIONS (STANDARD MODEL)

(1) Print method: Impact dot matrix

(2) Print speed:

Utility mode: 120 characters/second (at 10/12/17.1 CPI)
60 characters/second (at 5/6/8.5 CPI)

NLQ: 30 characters/second (at 10/12/17.1 CPI)
15 characters/second (at 5/6/8.5 CPI)

(3) Character pitches: Selectable with control codes

5 CPI ..... 0.2 inch (5.08 mm)
6 CPI ..... 0.167 inch (4.23 mm)
8.5 CPI ..... 0.117 inch (2.96 mm)
10 CPI ..... 0.1 inch (2.54 mm)
12 CPI ..... 0.083 inch (2.12 mm)
17.1 CPI ..... 0.058 inch (1.48 mm)

(4) Maximum number of characters per line: Selectable with control codes

| Character pitch | | 5 | 6 | 8.5 | 10 | 12 | 17.1 |
|---|---|---|---|---|---|---|---|
| Maximum number of characters per line | ML182 | 40 | 48 | 68 | 80 | 96 | 137 |
| | ML183 | 68 | 81 | 116 | 136 | 163 | 233 |
| Control code | | US | | | RS | FS | GS |

(5) Line feed pitches:

6 LPI ..... 0.167 inch (4.23 mm)
8 LPI ..... 0.125 inch (3.175 mm)

Variable line feed pitch n/144 (n: $0 \leqq n \leqq 127$) is specifiable. Also 10 LPI (14/144 inch), 6 LPI (24/144 inch), and 8 LPI (18/144 inch) are available in APA graphics.

(6) Paper-end detection: Paper-end is detected when the end of the remaining paper is about 1 inch (25.4 mm) from the printing position (in rear feed and bottom feed).

(7) Dimensions

| | ML182 | ML183 |
|---|---|---|
| Width | 14.17 inch (360 mm) | 20.16 inch (512 mm) |
| Height | 3.15 inch (80 mm) | 3.15 inch (80 mm) |
| Depth | 10.83 inch (275 mm) | 10.83 inch (275 mm) |

*Note: These dimensions do not include the platen knob and tractor feed unit.*

(8) Weight:
ML182 ..... 9.92 lb (4.5 kg)
ML183 ..... 13 lb (6 kg)

(9) Input power:
One of the following as specified:
120 VAC ± 10% 50/60 Hz ± 2%
220 VAC ± 10% 50/60 Hz ± 2%
240 VAC ± 10% 50/60 Hz ± 2%

(10) AC power cable:
Length ..... 5.9 ft (1.8 m)

(11) Power consumpion
During operation ..... About 33 VA
During idling ..... About 8 VA
Wattage: 6W ..... during idling
22W ..... during test printing

When Super-speed RS232-C interface board (option) is mounted.

(12) Ribbon:
Cartridge ribbon for exclusive use (Re-inking cartridge)
Ink color ..... Black
Ribbon life ..... About 3 million characters

(13) Interface:
The standard model has a Centronics parallel interface.
Optional interface:
(a) Super-speed RS232-C serial interface
(b) Super-speed RS422-A serial interface

(14) Options:
Tractor feed unit (only ML182)
(with acoustic cover, and access cover)
Roll paper stand (only ML182)

| | | |
|---|---|---|
| (13) | Interface: | The standard model has a Centronics parallel interface or RS232-C serial interface (9600 BPS)<br><br>Optional interfaces:<br><br>(a) Super-speed RS232-C serial interface<br><br>(b) Super-speed RS422-A serial interface |
| (14) | Options: | (a) Tractor feed unit with acoustic cover, access cover, and paper separator<br><br>(b) Roll paper stand |

# APPENDIX C.

# Specifications (IBM-Compatible Model)

# APPENDIX C SPECIFICATIONS (IBM-COMPATIBLE MODEL)

(1) Print method: Impact dot matrix

(2) Print speed:

Utility mode: 120 characters/second (at 10/12/17.1 CPI)
60 characters/second (at 5/6/8.5 CPI)

NLQ: 30 characters/second (at 10/12/17/1 CPI)
15 characters/second (at 5/6/8.5 CPI)

(3) Character pitches: Selectable with control codes

5 CPI ..... 0.2 inch (5.08 mm)
6 CPI ..... 0.167 inch (4.23 mm)
8.5 CPI ..... 0.117 inch (2.96 mm)
10 CPI ..... 0.1 inch (2.54 mm)
12 CPI ..... 0.083 inch (2.12 mm)
17.1 CPI ..... 0.058 inch (1.48 mm)

(4) Maximum number of characters per line: Selectable with control codes

| Character pitch | | 5 | 6 | 8.5 | 10 | 12 | 17.1 |
|---|---|---|---|---|---|---|---|
| Maximum number of characters per line | ML182 | 40 | 48 | 68 | 80 | 96 | 137 |
| | ML183 | 68 | 81 | 116 | 136 | 163 | 233 |
| Control code | | SO or ESC W 1 | | | DC2 | ESC: | SI |

(5) Line feed pitches:
6 LPI ..... 0.167 inch (4.23 mm)
8 LPI ..... 0.125 inch (3.175 mm)

(6) Paper-end detection: Paper-end is detected when the end of the remaining paper is about 1 inch (25.4 mm) from the printing position (in rear feed and bottom feed).

(7) Dimensions

| | ML182 | ML183 |
|---|---|---|
| Width | 14.17 inch (360 mm) | 20.16 inch (512 mm) |
| Height | 3.15 inch (80 mm) | 3.15 inch (80 mm) |
| Depth | 10.83 inch (275 mm) | 10.83 inch (275 mm) |

*Note: These dimensions do not include the platen knob and tractor feed unit.*

(8) Weight:

ML182 ..... 9.92 lb (4.5 kg)
ML183 ..... 13 lb (6 kg)

(9) Input power:

One of the following as specified:
120 VAC ± 10% 50/60 Hz ± 2%
220 VAC ± 10% 50/60 Hz ± 2%
240 VAC ± 10% 50/60 Hz ± 2%

(10) AC power cable:

Length ..... 5.9 ft (1.8 m)

(11) Power cosumpion:

During operation ..... About 33 VA
During idling ..... About 8 VA
Wattage: 6 W ..... during idling
22 W ..... during test printing

When Super-speed RS232-C interface board (option) is mounted.

(12) Ribbon:

Cartridge ribbon for exclusive use (Re-inking cartridge)
Ink color ..... Black
Ribbon life ..... About 3 million characters

(13) Interface:

The standard model has a Centronics parallel interface.
Optional interface:
(a) Super-speed RS232-C serial interface
(b) Super-speed RS422-A serial interface

(14) Options:

Tractor feed unit (only ML182)
(with acoustic cover, and access cover)
Roll paper stand (only ML182)

# APPENDIX D.

# DIP Switch Setting Table (Standard Model)

# APPENDIX D DIP SWITCH SETTING TABLE (STANDARD MODEL)

The DIP switches, provided on the control board, are used to select the following functions:

| SW No. | Description | Function | | Factory setting |
|---|---|---|---|---|
| | | ON | OFF | |
| SW1 | Selection of language/Page length setting | Note 1 | | ON |
| SW2 | | | | OFF |
| SW3 | | | | OFF |
| SW4 | | | | OFF |
| SW5 | | | | ON |
| SW6 | AUTO LF | When CR is received, automatic carriage return and one-line feed are carried out after data printing. | When CR is received, automatic carriage return is carried out after data printing. | OFF |
| SW7 | Selection of 7-bit/ 8-bit codes | Input data is all processed as 8-bit codes. | Input data is all processed as 7-bit codes. | ON |
| SW8 | Internal/external ROM | -------- | -------- | OFF |

***Note 1:*** *Selection of language and Page length*

| SW1 | SW2 | SW3 | SW4 | SW5 | Page length (inches) | Language |
|---|---|---|---|---|---|---|
| OFF | OFF | OFF | OFF | OFF | 11.0 | ASC II (Ø) |
| ON | OFF | OFF | OFF | ↑ | ↑ | ASC II (0) |
| OFF | ON | OFF | OFF | ↕ | ↕ | BRITISH |
| ON | ON | OFF | OFF | ↕ | ↕ | GERMAN |
| OFF | OFF | ON | OFF | ↕ | ↕ | FRENCH |
| ON | OFF | ON | OFF | ↕ | ↕ | SWEDISH |
| OFF | ON | ON | OFF | ↕ | ↕ | DANISH |
| ON | ON | ON | OFF | ↕ | ↕ | NORWEGIAN |
| OFF | OFF | OFF | ON | ↕ | ↕ | DUTCH |
| ON | OFF | OFF | ON | ↕ | 11.0 | ITALIAN |
| OFF | ON | OFF | ON | ↕ | 8.5 | BRITISH |
| ON | ON | OFF | ON | ↕ | ↕ | GERMAN |
| OFF | OFF | ON | ON | ↕ | ↕ | FRENCH |
| ON | OFF | ON | ON | ↕ | ↕ | SWEDISH |
| OFF | ON | ON | ON | ↕ | ↕ | DANISH |
| ON | ON | ON | ON | ↓ | 8.5 | NORWEGIAN |
| OFF | OFF | OFF | OFF | ON | 12.0 | ASC II (Ø) |
| ON | OFF | OFF | OFF | ↑ | ↑ | ASC II (0) |
| OFF | ON | OFF | OFF | ↕ | ↕ | BRITISH |
| ON | ON | OFF | OFF | ↕ | ↕ | GERMAN |
| OFF | OFF | ON | OFF | ↕ | ↕ | FRENCH |
| ON | OFF | ON | OFF | ↕ | ↕ | SWEDISH |
| OFF | ON | ON | OFF | ↕ | ↕ | DANISH |
| ON | ON | ON | OFF | ↕ | ↕ | NORWEGIAN |
| OFF | OFF | OFF | ON | ↕ | ↕ | DUTCH |
| ON | OFF | OFF | ON | ↕ | 12.0 | ITALIAN |
| OFF | ON | OFF | ON | ↕ | 11-⅔ | BRITISH |
| ON | ON | OFF | ON | ↕ | ↕ | GERMAN |
| OFF | OFF | ON | ON | ↕ | ↕ | FRENCH |
| ON | OFF | ON | ON | ↕ | ↕ | SWEDISH |
| OFF | ON | ON | ON | ↕ | ↕ | DANISH |
| ON | ON | ON | ON | ↓ | 11-⅔ | NORWEGIAN |

# APPENDIX E.

# DIP Switch Setting Table (IBM-Compatible Model)

# APPENDIX E DIP SWITCH SETTING TABLE (IBM COMPATIBLE MODEL)

The DIP switches, provided on the control board, are used to select the following functions:

| SW No. | Description | Function | | Factory setting |
|---|---|---|---|---|
| | | ON | OFF | |
| SW1 | Char. for (9B)H/(9D)H | ø/Ø | ¢/¥ | OFF |
| SW2 | 10 CPI/17.1 CPI | 17.1CPI | 10 CPI | OFF |
| SW3 | AUTO LF | Automatic carriage return and one-line feed are carried out after data printing. | Automatic carriage return is carried out after data printing. | OFF |
| SW4 | Page length setting | Note | | ON |
| SW5 | | | | ON |
| SW6 | SKIP OVER PERFORATION | 1 inch | OFF | OFF |
| SW7 | Selection of character set | II (including European characters) | I | ON |
| SW8 | Not used | To be fixed "OFF" | | OFF |

***Note:*** *Page length setting*

| *SW4* | *SW5* | *Page length (inches)* | *Number of lines for 6 LPI* |
|---|---|---|---|
| *OFF* | *OFF* | *11-⅔* | *70* |
| *OFF* | *ON* | *8.5* | *51* |
| *ON* | *OFF* | *11.0* | *66* |
| *ON* | *ON* | *12.0* | *72* |

**OKI**

**Oki Electric Industry Co., Ltd.**

**International Division:** 10-3, Shibaura 4-chome, Minato-ku, Tokyo 108, Japan Tel: (03) 454-2111 Telex: J22627
Cable: OKIDENKI TOKYO

**European Sales/ Service Support Centre:** **OKIDATA GmbH**
Hansa-Allee 187, 4000, Düsseldorf 11, West Germany Tel: (0211) 597940
Telex: 8587218 OKI D

M-520332 ISSUE 4A Printed in U.K.